RUTHENBURG TALKS ABOUT NRA PROGRAM

(Concluded from Page 1, Column 5)

a New Deal. We craved action. We got it. Much that has been done will undoubtedly have to be changed, but the mere fact that we got the action we demanded had a remarkable effect on the country.

"The NRA's principal effect has been psychological, certainly, because before any codes were approved, business everywhere began to show marked improvement. In one sense, then, the effect of NRA was intangible, but mightily important."

Taking up the recovery legislation's economic implications, the speaker asserted: "Costs have been and will be increased. If we can presuppose a certain substantial volume of business, we can so plan our production that prices will still be sufficiently low to prevent the recovery movement from defeating its own purpose.

"Although many predictions as to the NRA's benefits were overly optimistic, there has been substantial improvement in our country's business condition."

In our industrial legislation today, we must work not only to revive business, but to reform it, Mr. Ruthenburg declared. Business recovery without business reformation would not be sufficient. Another of his points:

"The NRA is only one of many instrumentalities necessary to revive all business. It is but one of the many tools necessary to give us a better balanced economy."

At the conclusion of his address, Mr. Ruthenburg referred to the country's current labor difficulties, and said, "The American Federation of Labor for several years has not been entirely representative of laborers in this country.

"It has lost members consistently since the Great War. But the cause of labor was revived greatly when the collective bargaining clause was included in the President's Re-employment Agreement.

"Today's labor troubles may be disguised blessings, because they may serve to call the attention of the government and the public to the need for increased attention to our labor problems."

Mr. Oakley's address was largely in the form of comment made during a showing of slides of modern cold storage warehouses, followed by a somewhat more detailed outline of the operations of the Merchants Refrigerating Co., New York City, with which Mr. Oakley is associated.

A number of the national president's remarks follow:

"The art of refrigerating perishables has advanced greatly during the past 15 or 20 years. Today there are 700 million cu. ft. of warehouse refrigeration space in this country.

"Use of conditioned air, ozone, etc. have played a very important part in advancing the art. Also in use today are 120,000 refrigerated cars for preserving perishables and this field is closely allied to that of warehouse refrigeration.

"Actual refrigeration of perishables has been improved tremendously during recent years," he said, "but trucking and general handling of these stuffs have been little improved upon, and are quite out of line with other warehouse operations.

"The duct system of distributing refrigerated air through warehouses has become quite popular, and is recognized for its effectiveness in keeping down operating expenses.

"Most large warehouses today have ozonators. These are very valuable, especially in egg storage, because of their effectiveness in oxidizing the products."

Pipe-line refrigeration today is practicable and dependable, said Mr. Oakley. In many respects, a central refrigeration plant is similar to a public utility, because it must be able to deliver its product without fail at all times, and must build its reputation on service.

Describing the Merchants Refrigerating Co., the speaker said that the plant is located in lower New York City. The company has been providing this service for 25 or 30 years. Its pipe lines, varying in diameter from 3 to 12 in., are laid from 5 to 7 ft. below the surface of the ground.

These pipes, he said, are made of steel, and the brine circulated through them is slightly alkaline to prevent the steel from corroding, and is sent through the lines at a temperature ranging between 0° F. and -4° F. for summer loads.

In summer, approximately 500 tons of refrigeration are supplied daily by this company to its customers, requiring circulation of 3,000 gals. of brine per minute through the lines.

Power for operating the refrigerating machines at the central station is the big cost in this business, said Mr. Oakley, who called attention to the great number of electrical instruments necessary in a central station to insure almost instantaneous detection of mechanical difficulties, and make constant supervision of all apparatus possible.

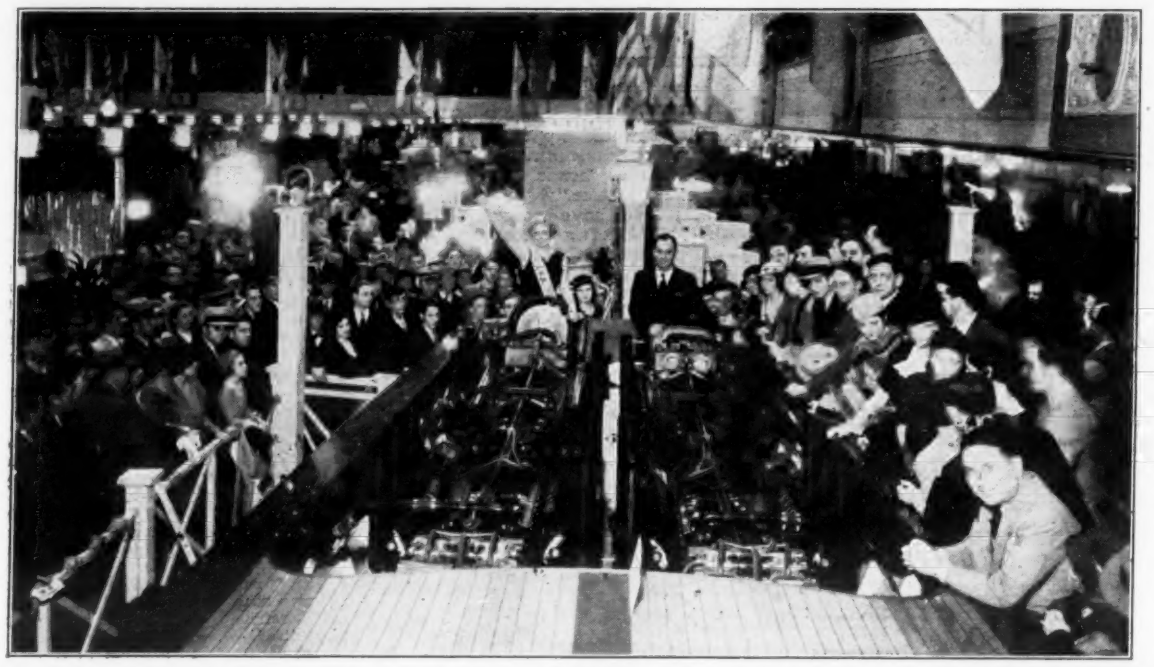
Greater part of Mr. Fiske's address concerned the society itself, but these significant remarks he made regarding the subject of engineering in general:

"Too many engineers are being turned out by our colleges and universities. The country doesn't need so many in the first place, and in the second, our schools can't turn out such masses of them and have them of the type we're going to need in the future.

"City sections of our engineering societies can do much, if they will, toward unifying these many groups of engineers, and improving the engineer-production problem in general."

Of the A.S.R.E. itself, Mr. Fiske said, "Growth of the society has been much slower than that of many associations, but that very fact has kept it strong and cohesive. Today, the society is recognized as stable and worthwhile, and its financial affairs are in excellent condition."

Miss NRA and Miss America



Orlin Johnson, Gar Wood's mechanic, and Florence Weiner ("Miss NRA") take the throttle and wheel of the fastest speedboat in the world, Gar Wood's Miss America X, at the Philadelphia electrical exposition.

G-E OFFERS TENANTS AIR CONDITIONERS

(Concluded from Page 1, Column 4)

nection, and a water line for humidification.

Compressors which supply refrigeration for the cabinet units are installed in closets lined with 1½ in. of insulating board. Each closet has its own power supply switches and control relays, and water pipes (connected to one of the building's mains) for condenser cooling.

Finned water coils, connected in series with the compressors' condensers, are used to carry off excess heat from the motors of the machines. Refrigerant and water lines to and from all the cabinets are laid in the floors of the offices.

Thermostatic radiator valves on the heating coils regulate temperatures in the rooms during the winter. Electric clock themostats control the refrigerating apparatus in summer. These controls also start the units in the morning, and shut them off during the night period.

Grigsby Refutes Labor Criticisms

(Concluded from Page 1, Column 1)

we believe, the first radio or refrigeration manufacturer to do so.

"3. We are paying wages in accordance with the code for our industries. No employe, other than a beginner, receives less than 40 cents per hour, no beginner less than 32 cents per hour . . .

"4. We have never had any complaint whatsoever from the National Recovery Administration. Obviously, if we were in a 'jam,' they would have communicated with us."

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

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WESTINGHOUSE BOOSTS PRICES ON SMALL UNITS

Increases Range from 7 to 14% on Nine Models

MANSFIELD, Ohio—Price increases on all but the three largest models of its household refrigerator line were put into effect Oct. 21 by the refrigeration division of Westinghouse Electric & Mfg. Co. here. The increases range from 7 to 14 per cent, say Westinghouse officials.

This is the second price boost effected recently by Westinghouse, the first being made early in August. Following are the new recommended installed prices on the Westinghouse line, given by zones:

Northeastern zone: BL-43, $129.50; BL-45, $154; BP-45, $179; BL-55, $179; BP-55, $209; BL-65, $209; BP-65, $244; BL-75, $229; BP-75, $269; AP-90, $344; AP-130, $449; and AP-200, $574. The last three were not changed.

Southern zone: BL-43, $131; BL-45, $156; BP-45, $181; BL-55, $181; BP-55, $211; BL-65, $212; BP-65, $247; BL-75, $233; BP-75, $273; AP-90, $349; AP-130, $456; and AP-200, $582.

Western zone: BL-43, $133; BL-45, $159; BP-45, $184; BL-55, $184; BP-55, $214; BL-65, $216; BP-65, $251; BL-75, $239; BP-75, $279; AP-90, $356; AP-130, $466; and AP-200, $592.

PRESIDENT APPROVES CODE FOR RETAILERS

WASHINGTON, D. C.—The master code for the nation's retailers was signed Oct. 23 and will become effective next Monday, Oct. 30.

The code did not include the cost plus 10 per cent "stop loss" provisions, demanded by six major retail trade associations, but other loss limitations which forbid selling goods below cost were inserted into the code.

The substitute provisions permit a trade authority, set up in the code to establish a percentage above actual invoice cost whenever it wishes to check "predatory price cutting" or "cut throat competition."

"Loss leader" sales, which are prohibited by the code, are defined as "articles often sold below cost to the merchant for the purpose of attracting trade."

A merchant may sell any article without profit to himself, but the selling price "should include an allowance for actual wages of store labor, to be fixed and published from time to time by the trade authority hereinafter established."

Merchants operating a store in a town of 2,500 population or less and employing fewer than five persons are exempted from all provisions of the code.

Any retailer may sell any article of merchandise at a price as low as the price set by any competitor in his trade area on merchandise which is identical or essentially the same, if such competitor's price is set in con-

(Concluded on Page 4, Column 3)

NOISE ELIMINATION TO BE DISCUSSED BY ENGINEERS

DETROIT—Elimination of noise will be discussed by a group of automotive engineers Saturday night, Oct. 28, when the Mid-West section of the Andrew F. Johnson Alumni Society gathers for its annual dinner meeting in Webster Hall.

In view of recent developments toward further reduction of noise in electric refrigerators, a number of refrigerating engineers are also expected to attend.

Iris Carron of the engineering department of Chrysler Corp. will be master of ceremonies. Talks will be made by F. J. Zand, research acoustical engineer of Sperry Gyroscope Co., New York City; J. W. Votypka of LeBaron-Detroit Co., maker of custom-built automobile bodies; Dr. J. A. Nagy, president of the James A. Nagy Co., manufacturer of sound-deadening

(Concluded on Page 16, Column 5)

Subjects Selected For Convention Of A.S.R.E.

NEW YORK CITY—Subjects to be treated at the winter meeting of the American Society of Refrigerating Engineers here this December have just been announced by A. R. Stevenson, Jr., chairman of the program committee.

Headquarters for the affair will be the Hotel New Yorker. The meeting will convene on Wednesday morning, Dec. 6, and will run through Friday morning, Dec. 8. All meetings will be held in the Hotel New Yorker, except for the Thursday afternoon session which will be held jointly with the American Society of Mechanical Engineers in the Engineering building, on 39th St.

The annual banquet is scheduled for Thursday night in the grand ballroom of the hotel, according to Ira E. McFarland of the New York section which is making all arrangements for the affair.

As now planned, the following subjects will be discussed at the various sessions:

Wednesday morning—New Applications. "Special Uses of Refrigeration

(Concluded on Page 16, Column 5)

NEW DETROIT VALVES ARE NON-ADJUSTABLE

By John T. Schaefer

(See Drawing on Page 14)

DETROIT—Two new expansion valves, both with permanent adjustments fixed at the factory and inaccessible to manipulation in the field, have just been announced by I. J. Knudson, refrigeration sales manager of the Detroit Lubricator Co. One is a non-adjustable automatic expansion valve, the other is a non-adjustable thermostatic valve.

Model 675 "Genuine Detroit" automatic expansion valve is similar in general design to the previous model, but is somewhat smaller, and has the new feature of permanent adjustment. The valve is sealed at the factory, and needs no re-adjustment for operation in high altitudes.

The valves are set by the factory for the pressure setting required by the customer and cannot be re-adjusted, according to Dan Wile of Detroit Lubricator's research laboratory. This excludes the possibility of tampering with the adjustment, and eliminates the need for adjusting the expan-

(Concluded on Page 14, Column 1)

4-YEAR REPLACEMENT CONTRACT AT COST OF $5 OFFERED BY G-E

MERCHANDISE CLINIC EMPHASIZES STYLE

Department Store Men Study Specialty Selling

CLEVELAND—Informal discussions of the round-table variety were the order of the day at the Merchandising Clinic for department store appliance merchandise managers, held Oct. 17 and 18 at Nela Park here under the auspices of the specialty appliance sales department of the General Electric Co.

From the discussions the following conclusions were reached on major controversial subjects (as in the case of an exhibition boxing bout, these are "press decisions," rather than those of an official referee or of an actual vote):

1. Style will be even more important in 1934 than in 1933. Appliances are moving out of the hardware department and into the fashion classification.

2. Department stores should not subsidize instalment selling; but should charge the same rates on time payment paper as finance companies, using profits therefrom for further advertising.

3. Outside selling has an important place in the department store appliance merchandising program. Although the cold canvass is still frowned upon by department stores, they are encouraging follow-up calls to the homes of prospects with whom contact has been established in the store.

P. B. Zimmerman, manager of the specialty appliance sales department of General Electric Co., declared that America today is just starting on the Electrical Age. The retail value of domestic electrical appliances sold last year was more than three hundred million dollars, he pointed out.

Among the speakers on the program were: Herschel Lutes of J. L. Hudson Co., Detroit; E. Goldstein of The May Co., Cleveland; Lew Hahn, president of the National Retail Dry Goods Association; T. K. Quinn, vice presi-

(Continued on Page 10, Column 3)

Radio Advertising Plans Compared By G-E Men

CLEVELAND, Oct. 24.—Radio advertising, it was agreed by Walter Daily's conference of distributorship sales promotion managers which closed here today, is perhaps the most difficult form of advertising to handle.

Considerable time was spent at the conference in comparing results of widely divergent plans used in connection with radio advertising by different distributors. Radio was not considered to the exclusion of all else, however, and the conference got down to cases on the practical use of direct mail, newspaper advertising, outdoor advertising; window displays, contests, cooking schools, the kitchen coach, and movie distribution.

"Fan mail," declared E. H. Campbell, sales promotion manager of Rex Cole, Inc., "is the bunk. We do nothing to stimulate it. Most people who write in for something free are cronic coupon-clippers and not good prospects. We do ask listeners to call at our showrooms for the products offered in the commercial announcements.

"Our chief problem in connection with radio is that of getting salesmen to translate interest in entertainment into interest in appliances. Radio ad-

(Concluded on Page 7, Column 1)

DETROIT RADIO DEALERS PLAN UNIFORM FRANCHISE

DETROIT—The uniform distributor-dealer franchise for dealers in radios in the Detroit metropolitan area will probably be adopted and made effective immediately at a meeting to be held Nov. 1 in the auditorium of the *Detroit News* building.

The Radio Wholesalers Association and the Greater Detroit Radio Dealers Association have cooperated in drawing up the franchise, a number of meetings having been held, with members of both groups in attendance.

The question of whether the uniform franchise will be extended to refrig-

(Concluded on Page 7, Column 5)

BUYERS PROTECTED FOR 5-YEAR PERIOD

New Price Schedule Includes Cost of Contract

By George F. Taubeneck

CLEVELAND—Neatly circumventing that feature of the proposed refrigeration code, which limits the guarantee on an electric refrigerator to one year, the General Electric Co. has begun selling four-year replacement contracts, additional to the standard one-year warranty, with General Electric household refrigerators.

Five dollars of the price of every G-E refrigerator is set aside for the purchase of this contract, which entitles the owner to replacement of defective parts, or of the entire mechanism, of the hermetically sealed G-E refrigerating machine for the four years following the expiration of the one-year guarantee.

General Electric officials insist that this new policy is not a five-year guarantee, although some distributors are referring to it as the "five-year guarantee plan." The replacement contract does not apply to the cabinet or controls. Moreover, G-E men point out, the contract must be *bought*.

Theoretically, a customer could refuse to accept the replacement contract, and thus obtain his refrigerator for five dollars less than the advertised price. G-E officials, however, do not contemplate the occurrence of such a situation.

P. B. Zimmerman, manager of the G-E specialty appliance department, claims that records can be produced to prove that the figure of five dollars each is approximately the average cost of replacing defective Monitor Top mechanisms during a four-year period.

In accordance with the terms of the Nema code, the new four-year replacement contract will not be advertised or publicized. (In fact, the information contained in this story has not been "released for publication," and might not have been obtained for this issue of ELECTRIC REFRIGERATION NEWS had the editor not heard Mr. Zimmerman explain the plan at the meeting of the department store merchandise managers in Cleveland last week.)

Following is the wording of the General Electric four-year replacement contract:

"We agree to replace the hermetically sealed-in mechanism of each

(Concluded on Page 4, Column 5)

Cooper Executives Do Their Home Work

Officials of R. Cooper Jr., Inc., Chicago G-E distributor, are making a first-hand study of the products they sell. Here is Sam Nides, sales promotion manager, brushing up on his vacuum cleaning, while H. W. Gifford, vice president and retail sales manager, does some neat work with a G-E flat plate ironer. Washing his shirt is R. Cooper Jr., president. Watching the men work (left to right) are A. G. Chaffer, G-E representative from Bridgeport, Conn.; George H. Meilinger, Cooper personnel manager; H. W. Rose, manager of Cooper's main showroom; Harry Perry, G-E refrigerator display manager at the Fair; and Russell Poirsons, G-E representative.

M.I.T. TO START LECTURE COURSE IN REFRIGERATION

BOSTON—An eight weeks' lecture course in household and commercial refrigeration will be offered at the Massachusetts Institute of Technology in Cambridge this fall by the university extension division of the Massachusetts Department of Education. The course starts Friday night, Nov. 3, and continues for eight weeks thereafter.

The lecturer will be John G. Praetz, M.I.T. graduate and special lecturer in refrigeration for the past three years. If the demand for the course war-

(Concluded on Page 16, Column 1)

NEW ICE CUBE FREEZERS ANNOUNCED BY PEERLESS

CHICAGO—New ice cube maker has just been announced by the Peerless Ice Machine Co. here.

The freezer is constructed entirely of aluminum and copper. Each tray shelf is filled with copper tubing so that close contact is made between the tray and the refrigerant.

No insulation is used with this unit, as it is installed in connection with other coils in boxes maintained at a temperature of 45° F. or lower. When

(Concluded on Page 4, Column 5)

BY GEORGE F. TAUBENECK - - -

All About 'Bugs' Uhalt—and Others

We're used to hearing fond papas rave about their brilliant offspring. So whenever we heard AL UHALT, driving manager of the G-E dealer division (and Father of the Kitchen Coach), talk about his two-year-old son, we just smiled tolerantly and thought: these fathers!

But that was because we had never seen JUNIOR UHALT, who is more familiarly, and entirely inappropriately known as "Bugs."

Last Saturday night that grave error was corrected. We had dinner at Monaco's in Cleveland (official G-E hangout) with Mr. and Mrs. Uhalt and "Bugs."

Gentlemen, it's our honest opinion that Al could make a quick and easy fortune if he took that boy to Hollywood. With the possible exception of "Spanky," who appears in HAL ROACH "Our Gang" comedies, two-year-old "BUGS" UHALT is the most expressive and intelligent child we've ever seen. BABY LEROY isn't even in it with "Bugs."

It has been the observation of this cynical (and often bored) old bachelor that babies aren't "money players." They never perform in front of an audience. But this one did. Invariably in a gleeful and cooing humor, he grinned and gurgled continually, showed *intelligent* curiosity about everything and never once was a "problem."

Many an exasperated movie director, we'll wager, would pay handsomely for a kid who'd be as expressive and agreeable as "Bugs."

We had been in Cleveland to attend RALPH CAMERON'S meeting of department store big shots, and stayed over until Monday to appear at WALTER DAILY'S sales promotion conference. Saturday we went to the Army-Illinois football game with quite a party.

F. M. COCKRELL, who is an Illinois alumnus, came over from Detroit for the game, bringing MRS. COCKRELL and daughter, HELEN. We sat with them at the game. On our left were General Electric's AL UHALT and ART SCAIFE, and on our right were GEORGE HUFF, director of athletics at the University of Illinois, and DAVID KINLEY, ex-president of that institution.

Also at the game were Messrs. ZIMMERMAN, DAILY, CAMERON, KOBICK, CORLISS, TIMMERMAN, HULETT, HARVEY, BARD, NORLING, HART, PONNING, WIGGS, STAFFORD, MILLOTT, CHANDLER, TRUAX, and a flock of others.

After dinner at Monaco's (and if you don't know FRANK MONACO you've missed one of the few old-school, old-world *gentlemen*) there was an informal party at the Carter hotel.

The party was a dandy. To a man the G-E Cleveland gang has been extraordinarily successful in annexing young, comely, and charming wives (who, we suppose, succumbed to the high-powered G-E salesmanship), and all entered into the spirit of the occasion.

Noting how impressed we were, District Manager FRED HARVEY seized the occasion to give us a two-hour sales talk on the joys of matrimony, and his arguments were so good that we promised him to take a week off some time and look around for a prospect.

FRANK CORLISS, handyman around the commercial department, demonstrated amazing proficiency with the dominoes, and broke up a good game by making almost unbelievable runs of 8, 14, 11, and 16 straight "passes"—thus again postponing Hudson's chance to sell us a new suit.

• • •

Quinn on Imagination

Few men in our experience have exhibited such constructive imagination as TED QUINN, vice president of the General Electric Co.

At the aforementioned meeting of department store executives in Cleveland last week (see story on page 1 of this issue) he talked about imagination, and quoted the following significant paragraphs from an article by LORIN F. DELAND in the current *Reader's Digest*:

"On down into the ranks of unskilled labor, imagination carries, even to the most hopeless situation—the unpractical, stranded man, out of employment, knowing no trade, with no capital (save his strength), and without hope, courage, or faith in himself, his will paralyzed by despondency.

"What can we do for him? Why not give his case the benefit of just a little imagination that we have been considering?

"Don't tell him to apply at some of the big stores or factories. *Keep him away from the beaten track!*

"One fellow of this sort was told to make a business of going round to houses and washing pet dogs.

"It didn't take over a month for him to create a good business that was non-competitive and independent. He charged 50 cents a dog, and in most cases it was a regular weekly service.

"Then, there is the employe's imagination. One, a worker in a wholesale clothing house, came to ask if he had not better give up his job, to find something better.

"He had been with the house three years, had received one small raise at the end of the first year, and now, he thought, was hopelessly stalled.

"To see what imagination he might use in this problem, I said: 'The important thing is to learn whether you are paid all you are worth; and, that settled, whether you can make yourself worth more.'

"He agreed to put himself in my hands for three months and to follow instructions, which were:

"'For the first 30 days put your mind wholly to finding a method by which your house can sell $100,000 worth more every year than now; or $10,000; or $1,000, or $100. Put your plan on paper, verify each item, and take it, at a favorable moment, to your superior. Put it to him modestly; and, if he decides it is not good, go to work on another.'

"Thirty days later he returned to report that he had found no method for expanding his firm's business even $100 a year.

"Then I gave him the next month's labor: 'Discover a method by which, while losing no advantage, the firm can effect a saving of $50,000 a year; or even $50.'

"In 30 days he returned to report no single discovery whereby his firm could economize.

"'Then,' said I, 'lie low; attract as little attention as possible. You are paid all you are worth; and, if your manager knew how little capable you are of progress he would change you off for one of greater promise. I don't mean you are inferior to thousands of other young men, but you and others simply are dead weights upon the head of the man who must solve these problems.'

"Imagination *is* valuable; it is as applicable, and, with the single exception of the art of literature, it is as essential in the management of trade as in any of the arts."

• • •

Floating Kelvin Kitchen

Four sailor-scientists eat food from one of the Kelvinators installed on Admiral Byrd's ship, which is bound for the south pole.

More to Come

Frank Corliss of the commercial refrigeration department of the General Electric Co. You are going to hear more from and about Frank one of these days.

O. O. McIntyre Again

Recall our error in headlining the purchase of a Frigidaire by Columnist O. O. McINTYRE, when he really bought a General Electric?

He himself reported the acquisition in his syndicated daily feature as follows:

"Coolish walking home and saw Morris Gest dreaming along a dark side street and halooed if he remembered the institution they used to call the theater. He nodded sadly. We inspected the kitchen refrigeration Rex Cole installed while away and I fell to telling M. that some day air conditioned houses would have no windows. But she yawned: 'All right, but pull down ours and go to bed.' Hic jacet!"

• • •

So What?

One of the funniest documents this department has read in a long time is the following correspondence between a supplier and a dealer. Both parties to this controversy sent us copies of the correspondence and asked us to arbitrate.

Reading it practically broke up the editorial department one day. Thinking you might laugh over it, too, we've deleted the names and copied it here for your amusement (be sure to read clear to the end of the correspondence):

Company A
Gentlemen:

Yesterday we received the drum of Isobutane. Upon weighing same, we found it weighed 22½ pounds.

This morning we received your invoice and find we are charged for 10 pounds. The drum weighs 15½ pounds, therefore we should only be charged with 7 pounds.

We shall appreciate receiving your check for $5.70.

Thanking you, we remain
Very truly yours,
Company B.

Company B
Gentlemen:

We are in receipt of your favor of June 14 in regard to a drum of Isobutane picked up at our plant after hours on the 12th. As is usual in the case of gases that are left for pick up in charge of the watchman, particular care was taken to see that the cylinder was properly checked; that it contained the right amount of gas and that it was in good order and condition. We can assure you that ten pounds of gas were put into the cylinder and that there were ten pounds in it when it left here.

We trust you will be able to re-check your figures and find that we are correct.

Very truly yours,
Company A.

Company A
Gentlemen:

We have again checked the drum of Isobutane as we have not used any of it. Our drum empty we know weighs 15½ pounds and it now weighs 22½ pounds. Therefore, we have been overcharged 3 pounds of Isobutane.

We are sure that our drum does not leak and we did not wait a week or so before we reported it to you either. We will therefore ask that you kindly return $5.70 to us.

Very truly yours,
Company B.

Company B
Gentlemen:

Referring to your favor of June 16, we note that you are quite positive that the cylinder does not now contain the ten pounds of Isobutane we put into it here. Our records are indisputable that ten pounds of gas were put into the cylinder.

However, as you represent the irresistible force and we the immovable body, we suggest that we split the difference and hereafter we will see that your man checks the weight before taking the cylinders away.

Kindly advise us if the above is satisfactory.

Very truly yours,
Company A.

Company A
Gentlemen:

In reply to yours of June 20th, we will give you the benefit of the doubt and split the difference.

Very truly yours,
Company B.

Company A
Gentlemen:

We find that we again have to call you on a short weight.

We gave our empty drum to the transportation company and weighed it in their presence and showed them it weighed fifteen pounds and six ounces.

The drum was returned to us this morning and was weighed in the presence of the driver again. We found it to weigh twenty-two pounds and four ounces. We examined the valve for leaks, but found it o.k.

Now gentlemen, this stuff is expensive and is only good business that we watch it. We accepted this shipment, paid the express company and will ask that you send us your check for the difference.

Your very truly,
Company B

Company B
Gentlemen:

We are in receipt of your favor of July 25, and note that you again find that we have short-weighted you on shipment. In this instance we know that you are wrong, since our superintendent called the attention of your driver to the fact that we had put ¼ of a pound more in the cylinder than your order called for. He further explained to him that we would not extract it from the cylinder, even though it would cost us money in view of the fact that we could not cash it ourselves.

In view of your disposition to give us the small end of the stick constantly on the matter, we feel that it will be more satisfactory both to yourselves and to ourselves, for you to obtain your Isobutane elsewhere. We regret to have to turn down business of this sort, but we feel convinced that we cannot do business satisfactorily together.

Yours very truly,
Company A.

Company A
Gentlemen:

Have your letter of July 26th and I am thoroughly convinced that you are nothing but a gyp outfit. Whenever you are caught with the goods, you just can't take it.

I will not call this quits. I will get my satisfaction somehow. I will immediately notify the REFRIGERATION NEWS about your way of doing business, and that's only my first step.

I have affidavits from the express company as to weights going and coming on the drum, so I have you covered.

Short weights is about the dirtiest thing on earth. If you can't sell an item at a price, ask the price you can sell it at and don't be a skunk.

Very truly yours,
Company B.

Company B
Gentlemen:

We are in receipt of your discourteous letter of July 27 and it only confirms our determination to refuse to do business with you.

We notice your blackmailing threats in the second paragraph and would strongly advise you to step very lightly or you will find yourself in the category of undesirable citizens whom the President has decided to suppress.

Yours very truly,
Company A.

Company A
Gentlemen:

In reply to yours of July 28th, I am more than ever determined to go ahead and report your methods of doing business.

As far as being an undesirable citizen, I would like to know if there is anything more undesirable than a gyp and that is you. I can prove it on two different occasions.

Very truly yours,
Company B.

Good Fellows

Fred Bollmeyer of Maxon, Inc., and Ken Davis, G-E advertising-sales promotion man, talk it over.

• • •

Customer Appliance Surveys

An accurate customers' appliance survey is absolutely necessary in order that the gas company may at all times know its position relative to the saturation point and load factor of the various gas appliances in use, according to WALTER ROUTLEDGE, of the Union Gas and Electric Co., Cincinnati.

"The gas industry today is facing greater competition from other fuels than ever before in its history," he declares. "To direct a sales force with the object of increasing the average gas send-out per meter, and at the same time protect the existing load, it seems absolutely necessary to maintain an appliance record of all customers on the line.

"An analysis of a properly prepared survey is the most prolific source of information to be had concerning the appliance situation in any given field. It should be an indication of the results of past efforts and a guide to further activity."

A number of methods may be used for obtaining these surveys, he pointed out, such as (a) a group of gas salesmen, (b) meter readers, (c) a special crew recruited for this purpose only, or (d) appliance service men.

(a) More accurate reports can be obtained when using a group of gas appliance salesmen, providing the method of compensating them does not penalize them for the time devoted to survey work.

Gas appliance salesmen have a more definite connection with the company than a special temporary crew, and consequently are better trained and more familiar with company policy.

The making of a survey also gives an entree to homes and provides an introduction or return call for the salesman. Objection to this method is the length of time the survey takes.

(b) The use of meter readers in making a survey has met with varying success in different localities. Nature of their regular work would make securing complete information for a survey an extremely hurried task with the attendant loss of accuracy, unless a suitable plan of compensation is arranged to insure accuracy.

One argument in favor of using meter readers would be that of securing information in a short time.

(c) A special crew of company personnel for the purpose of making a survey has the advantage of greater speed in completing this work. It offers the additional advantage of keeping on the payroll men who might otherwise have to be released or reduced in their working hours.

Lack of previous training and temporary nature of the work necessitates careful schooling and supervision of the work with this method.

(d) Appliance service crews have been used, especially where companies supplying manufactured gas are changing to either mixed or natural gas as well as in other cases.

When such a change is being made, the service men are compelled to visit all customers changing over their equipment to provide for the new gas, and at that time a complete survey can easily be obtained.

If service men obtain survey information in the course of their regular servicing work, the equipment first reported upon is that which is most obsolescent, and hence the information first gathered is most useful in developing sales prospects.

While the use of this method solely would delay the completion of the survey as compared to previous methods, it may be used advantageously in conjunction with method (c) to give an accurate and rapid survey with substantial savings in total survey costs.

What a story *the Headlines tell!*

Frigidaire's sales volume in 1933 to date, is a dramatic record of success outstanding in refrigeration history.

Headlines over Frigidaire announcements as they have appeared in this paper from time to time briefly tell the story . . . "Frigidaire sets new standards" . . . "Sensational selling points turn prospects into customers" . . . "New Frigidaire takes country by storm" . . . "June biggest month in Frigidaire history" . . . "All sales records broken" . . . "August tops July" . . . and so on.

It's perfectly obvious why such records are made possible. First, Frigidaire offers outstanding values. The new Standard Frigidaire that uses less current than one ordinary lamp bulb has been the sensation of the industry. And the new All-Porcelain Super Series Frigidaire, with improvements never before offered, have a tremendous appeal to those who want surpassing quality at a low price.

Supplementing these unusual values is Frigidaire's constructive cooperation with dealers . . . distinctive, sales-building advertisements in magazines and newspapers . . . nation-wide radio broadcasts . . . dramatic store demonstrations and displays . . . result-getting sales plans . . . specialized literature.

And for the balance of the year, Frigidaire dealers will continue to benefit from Frigidaire's leadership, now more firmly established than ever. In addition, they'll benefit from the unusual sales helps . . . window and store displays, newspaper advertisements, direct mail and other material . . . *specially designed to increase Fall and Christmas business.* Thus Frigidaire now, as in the past, offers dealers a money-making opportunity that is outstanding in the refrigeration field. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

Frigidaire

A GENERAL MOTORS VALUE

PRESIDENT APPROVES CODE FOR RETAILERS

(*Concluded from Page 1, Column 1*)

formity with the foregoing provisions.

A retailer who thus reduces a price to meet a competitor's price as above defined shall not be deemed to have violated the code if he immediately notifies the nearest representative retail trade organization of such action and all facts pertinent thereto.

The trade practice provisions of the code strike at misleading advertising, secret rebates, and other unethical practices.

Inaccurate Advertising

Banned an inaccurate or misrepresenting advertising was that which "refers inaccurately in any material particular to any competitor or his goods, services, etc.," and advertising "which inaccurately lays claim to a policy or continuing practice of generally underselling competitors."

No retailer can advertise anything "inaccurate in any material particular" or misrepresent merchandise, or boast any special credit services which he will not give or "use advertising and/or selling methods which tend to deceive or mislead the customer."

One of the most important provisions of the code is that which forbids retailers to buy any goods which do not bear the Blue Eagle, if such goods are manufactured by an industry covered by a code of fair competition or the President's Reemployment Agreement. This effectively closes outlets to those who attempt to operate outside of the codes.

Trade Economies Board

Created by the code also was a National Retail Trade Economics Board, of five men appointed by the President, to study and report on economic results of the code. A National Retail Trade Council will administer the code, its membership consisting of one to three representatives elected from each major division of trade covered in the code and working under supervision of a Retail Trade Authority, consisting of Administrator Johnson or his deputy and three advisers appointed by the President.

Wages and House Scale

On wages and hours, the code provisions were substantially unchanged from the last published draft. The minimum wage ran from $15. to $10 on a scale combining population and work hours as follows:

	40 hr. wk.	44 hr. wk.	48 hr. wk.
500,000 population	$14	$14.50	$15
100,000 up	$13	$13.50	$14
25,000 up	$12	$12.50	$13

In towns of 2,500 up, not less than a 20 per cent increase without requiring more than $11, but not to be less than $10.

Sixteen Southern states and the District of Columbia have a scale that is $1 lower. Juniors and apprentices get $1 below scale. Part time workers get paid on the hourly rate of full time employes.

Optional Hours

The three scales of hours given above are optional with the store, but must depend on proportionate length of store operation. The 40-hour work week goes with 52 to 56 hours of operation; 44 with 56 to 63 hours; and 48 with 63 or more hours' operation. One day off a week is mandatory for all but enumerated classes exempted from hour limits. Work days of 8, 9, and 10 hours respectively accompany each schedule.

The provision allowing 14- and 15-year-old persons to work three hours a day outside schools hours, or one eight-hour day each week, was amended to prohibit delivery work from motor vehicles for any under 16.

COMMISSION SALESMAN

There is nothing in the code which would seem to exempt salesmen working on a commission basis from the minimum wage provision of the code.

Section 4 of Article II in defining an "employe" declares that the "term 'employe' as used herein shall mean any person employed by any retailer but shall not include persons employed principally in the selling at retail of products not included within the definition of retail trade." This would not seem to have any bearing on the status of refrigerator salesmen.

Section 5 of Article II defines outside salesmen as a "salesman who is engaged not less than sixty (60) per cent of his working hours outside the establishment or any branch thereof, by which he is employed."

Section 1 of Article VI declares that "on and after the effective date of this code, the minimum weekly rates of wages which shall be paid for a work week as specified in Article V—whether such wages are calculated upon an hourly, weekly, monthly, *commission* or any other basis—shall, except as hereinafter provided, be as follows:"

The same section also provides that "the minimum wages paid to professional persons, *outside salesmen,* watchmen . . . (in other words, those employes working unrestricted hours) shall be upon the basis of the basic employe work week upon which the establishment by which they are employed has elected to operate."

This means, in effect, that commission salesman will have to be paid a minimum wage ranging from $10 to $15 a week, depending upon the size of the locality in which the retailer is located and the number of hours he keeps open.

In an interpretation by Recovery Administration officials of the President's Reemployment Agreement, under which most retailers have been operating since Aug. 1, commission salesmen who had been working for the same retailer previous to June 16, 1933, were exempted from the minimum wage provisions of the agreement, but if they were employed after that date they had to be guaranteed the minimum wage set forth for the retailer.

It is possible that the National Retail Trade Council which will administer the code will follow the precedent established under the President's Reemployment Agreement.

Ice Cubes

Peerless' new ice cube freezer.

NEW ICE CUBE FREEZERS ANNOUNCED BY PEERLESS

(*Concluded from Page 1, Column 5*)

so installed, it is possible to secure between three and six freezings per 24 hours.

Soldered return bends have been eliminated in this ice cube maker. Tubing is made in continuous length, the only joints being the inlet and outlet. One-half inch tubing is used.

The freezer is available in two- and three-tray widths of any height, 17 different combinations from two ice trays up to 21 ice trays being listed as standard models.

Standard ice cube maker models can also be supplied with a reserve compartment for storage of cubes already frozen, say Peerless officials.

This ice cube maker is designed for installation below the fin coil in the refrigerator, connecting the expansion valve to the bottom inlet of the cube maker, expanding upwardly through the cube maker and then into the fin coil. The cube maker thus operates in a semi-flooded condition.

REPLACEMENT CONTRACT TO BE SOLD ON G-E UNIT

(*Concluded from Page 1, Column 5*)

Domestic Type General Electric Refrigerating Machine sold on or after October 10, 1933, our obligation hereunder being limited to replacing the whole or any part of said hermetically sealed-in mechanism (or, at our option, to replacing the refrigerating machine with a complete General Electric Refrigerating Machine of like or similar design and capacity) in which defects in material or workmanship become manifest, under normal use and service, whereby it fails and cannot be made to operate, within four years next following the expiration of our one year warranty thereon, and which our examination shall disclose to our satisfaction to be thus defective.

"This replacement contract does not apply to the refrigerator cabinet, nor to the control, nor to the porcelain and lacquer finishes, or any part of the refrigerating machine other than the hermetically sealed-in mechanism, nor to any such mechanism which has been subject to accident, abuse or misuse."

New prices of General Electric refrigerators, effective Oct. 10, and including the purchase of the four-year replacement contract, are:

HE-4, $111; HE-5, $145; HE-7, $184; HX-47, $149; HX-70, $204.

S-85, $249; S-107, $365; S-146, $420; S-182A, $565.

HT-47, $170; HT-70, $230.

P-85, $264; P-110, $360; P-134, $370; P-170A, $520; P4-180A, $595.

Here comes another *MAJESTIC* "spread" *in The Saturday Evening Post!*

THE SATURDAY EVENING POST November 4, 1933


THE MAJESTIC RIVIERA

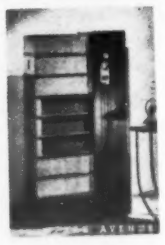

THE MAJESTIC LIDO

The "Smart Set" of Radio


THE STUDIO


THE CENTURY SIX


THE CHAIRMAN


THE AVENUE


THE MAJESTIC QUEEN

THE SATURDAY EVENING POST

NRA

Yes, the 1934 Majestics are smarter!


THE MAJESTIC [illegible]

and have you heard about the new Majestic **Duo-Valve** *circuit?*

FORTUNATE you are—to be buying a radio *now*. For *now* you can choose from the stunning new models that are everywhere being acclaimed as the "Smart Set" of Radio—the Majestics for 1934.

Here are some of them. Here you see the new note in design—always refreshing, never deadly-dull, sometimes daring, never extreme. Here you see the new *smartness* that "belongs" in modern settings or adds a welcome spark of originality to more usual environments.

You see new lines, new planes, new contrastings between fine woods of richly varied tones. And, as you smooth your hand over the beautifully grained surfaces, as you realize that *other* hands have rubbed them to a true piano finish, you sense a new carefulness in craftsmanship.

Then—you turn the dials! A moment's listening reveals the difference. For every Majestic is "stepped up" beyond all former standards by the use of the new, exclusive Majestic *Duo-Valve* circuit. The efficiency of at least *two extra tubes* is added to every set. A 6-tube Majestic is the performing equal of an ordinary 8-tube!

Also, every "Smart Set" employs the new Majestic *Self-Shielded* tubes, with molten metal fused right on the glass to shut out electrical interference. And every one is a superheterodyne—with every 1934 improvement and refinement.

From this more perfect circuit, from these more perfect tubes, comes a *new perfection of tone*—exclusive with Majestic. It is a tone without the "boom, boom" muddiness of old-style radios, a tone that reveals every voice, every instrument, in its true, lifelike character.

Tune in a Majestic "Smart Set" and you will exclaim: "Now I am really hearing the music of the air—for the first time!"

Don't *you* want to see and hear the finer radios that everyone is talking about? Visit the Majestic dealer near you! He will gladly show these smarter models and explain his easy deferred payment plan.


THE TUDOR

The SMART SET Majestic RADIO

Licensed under patents and applications of R.C.A., Hazeltine, and La Tour

For a motorist's Christmas—the Majestic "Twin Six" auto radio!


THE TWIN SIX AUTO RADIO

NRA MEMBER U.S. WE DO OUR PART

GOOD NEWS . . . IF YOU'RE SELLING MAJESTIC

Another "spread" in The Saturday Evening Post. Two powerful, beautiful, interesting pages, presenting in true-to-life photographs some of the new Majestic models that everybody is talking about—the "Smart Set" of Radio!

Look for this advertisement in the November 4 issue of the "Post"—out October 31. Look *at* this advertisement—see what a story it tells of style, smartness, up-to-dateness; and of finer performance secured by Majestic's new, exclusive *Duo-Valve* Self-Shielded tubes.

Majestic has the radios! That's the long and short of it. Majestic saw the new style trend coming—and saw it first. And Majestic Dealers are benefiting *now* from Majestic's unquestioned *Style Leadership*, interpreted by ultra-smart advertising.

If *you* are not selling Majestic, get in touch with the Majestic Distributor. If you are selling Majestic *refrigeration*, but not Majestic radio—don't wait any longer. Sell both, and let the Majestic name work twice as hard for you!

The SMART SET Majestic

Licensed under patents and applications of R.C.A., Hazeltine, and La Tour

If you don't know the name of the Majestic Distributor for your territory—*give us a wire!*

GRIGSBY-GRUNOW COMPANY, 5801 DICKENS AVE., CHICAGO

COMPANION MERCHANDISE

BAR PRICE-CUTTING IN OIL BURNER CODE

WASHINGTON, D. C.—The code of fair competition for the oil burner industry, recently approved by President Roosevelt, outlaws the practice of selling or exchanging any product or service at a price level below actual cost.

It sets up 11 regulations of fair practice, establishes a code authority as an all-industry court of review, and calls for the establishment of a uniform system of cost accounting.

In condemning the practice of destructive price cutting and labelling it as "unfair competition," the code, as an initial step in setting up a uniform cost accounting system, calls for the submission of present price lists by each member of the industry and subsequently directs the code authority to develop and submit to the Administrator within 120 days a uniform system of cost accounting "designed to make posible the accurate determination of each member of the industry of his own individual costs."

Each company, upon filing final revised prices with the code authority, is granted the right to set an effective date, not less than 10 days after the filing of the revised prices, at which its prices are to become effective.

Control of cost, it is explained, is provided in a manner similar to that employed through the open price association plan which calls for uniform cost accounting and the free submission of prices intended to indicate whether individual members of the industry are selling below cost. With the code, however, it becomes mandatory upon every member of the industry to observe his submitted price which must not represent a sales figure below cost.

Insofar as its labor and wage provisions are concerned, the code sets up flexible working hours in line with practical seasonal requirements, and stipulates that in manufacturing operations the maximum average work week for one year shall be 36 hours, in installation and service operations the maximum work week for the year is fixed at 38 hours.

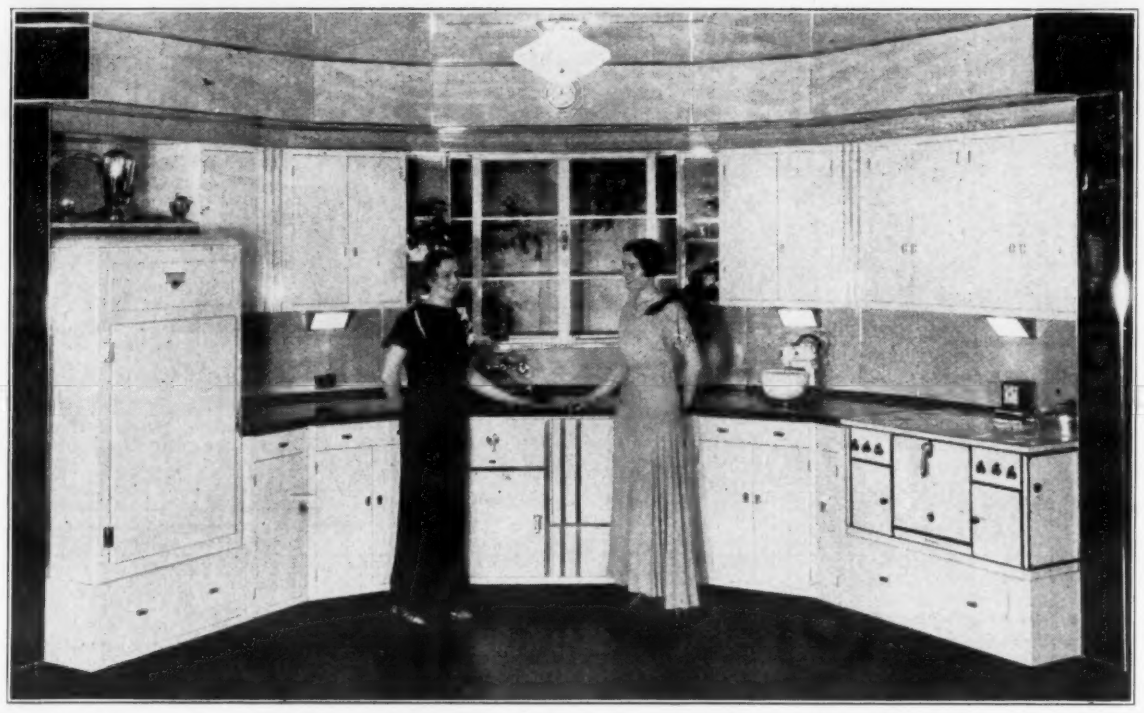
The minimum wage rate for both groups is fixed at not less than 45 cents an hour and for office and employes engaged in managerial executive capacities the minimum wage is fixed at not less than $15 a week.

Since the code does not draw any distinction between the wages to be received either by men or women, it is interpreted to mean that the code calls for equal pay for equal work.

The maximum work week for one year for office and salaried employes, receiving less than $35 a week, is fixed at 40 hours a week averaged over a six months period.

Administration and enforcement of the code will rest with a body of 12 persons known as "the code authority" declared to be a "planning and fair practice agency for the oil burner industry," which will cooperate with the NRA.

Even the Walls are Westinghouse in this Kitchen



Considerable planning went into this model kitchen, installed in the *Cleveland News* building by Westinghouse. The floor plan has been arranged to provide proper allocation of equipment for the work to be done by the housewife.

Next in line is the dishwasher and sink, and then another work surface where cooked foods are prepared. Adjoining this is the range, with quick access to the service door to the dining room. All work surfaces, as well as the walls and ceiling are constructed of Micarta, a Westinghouse product.

Work surfaces are attached to the walls with a cove molding which joins them with the back splash or wall. The base cabinets are set forward about 4 in. beyond the base to provide ample toe space. This allows the housewife to stand up close to the work space in a comfortable position. The linoleum floor covering is brought right up to the top of the toe cover. Cabinets are equipped with automatic lights which flash on when the doors are opened. Glass shelves permit complete visibility of all space within for proper storage of utensils.

Special attention has been paid to the lighting. The Micarta cornice adds decorative shape to the ceiling and insures a maximum of reflected light from the Westinghouse central lighting fixture. "Soffit" lights placed under the wall cabinets give the proper light intensity to the work surface areas.

Utility Substitutes Dealer Helps for Rental Plan

DETROIT—Detroit Edison Co. has announced the abandonment of plans for a rental-plan program of electric range selling and in its place has instituted a cooperative promotional plan for dealers which includes free installation of ranges and the payment of a $10 bonus to dealers for each sale made.

The utility also plans to cooperate with newspaper advertising, and is offering the services of home economists and a service department on ranges.

A group of specially trained range salesmen will concentrate on the job of selling the idea and advantages of electric cookery, without regard to any specific make.

OIL BURNER TRANSFORMER IS INTRODUCED BY G-E

SCHENECTADY, N. Y. — General Electric Co. here is introducing a new ignition transformer for oil burners which is radio-interference proof.

Design of this equipment simplifies assembly with the burner and reduces possibility of accidental contact and shock, G-E engineers point out, because each high voltage terminal consists of a receptacle with a removable plug arranged for soldering to insulated cable.

Provision is made for attaching, directly to the transformer, flexible conduit for surrounding the high-voltage cable.

The new transformer is balanced electrostatically, itself, and permits installation of the remainder of the high-voltage ignition circuit with practically perfect electrostatic balance, the manufacturer claims.

Under this condition, radio-frequency oscillations generated by the spark do not enter the primary supply lines, but pass directly to ground through the neutral connection.

Balancing of the circuit also reduces the stress on the transformer insulation caused by the radio frequency voltage which might otherwise be detrimental, the engineers explain.

These transformers are available in either 10,000 volts or 12,000 volts, the former for normal requirements of oil-burner ignition, the latter for severe requirements.

3 PERCOLATORS ADDED TO WESTINGHOUSE LINE

EAST PITTSBURGH, Pa. — Three new electric percolators have been added to the line of small appliances manufacturers by Westinghouse Electric & Mfg. Co. here. These percolators are models PJ-24, seven-cup capacity; PJ-14, six-cup capacity; and PJ-4, four-cup capacity.

All are finished in chrome plate, and were designed by Don Lee Hadley, Westinghouse appliance designer.

The PJ-24 will retail for $7.50, PJ-14 for $6.50, and PJ-4 for $5.95.

MAJESTIC CONSOLES HAVE MODERN LINES

CHICAGO—The new Majestic console radios, which were exhibited for the first time to Majestic distributors in a series of sectional meetings held recently are featured by a motif in design which was obviously influenced by the "modern architecture and furniture which dominated A Century of Progress exposition.

The cabinets are styled upon the latest ideas in modernistic designing. The woods used also bespeak of the modern by their contrasts, which run from natural to ebony. Each cabinet is given a hand-rubbed piano finish.

The receivers used in the modernistic models are the 6-tube type, with tone control, and automatic volume control. They will receive police calls.

Model 666 has a piano-finish cabinet, center panel and sides of striped walnut, pilasters of dark walnut. Model 776 has a cabinet finish with five different tones of woods, from natural to ebony. Model 886 has a piano-finish cabinet of red and white birch, finished in natural and ebony. Model 996 is distinguished by the two side shelves in its cabinet.

In addition to the modernistic models, three others have been announced—a Queen Anne consolette in matched-butt walnut, a Tudor consolette in an all oak cabinet with an antique finish, and a conventional console. These models are equipped with a 5-tube receiver providing dual range and enabling the owner to bring in police, aircraft, amateur, commercial and marine calls as well as stations on the regular broadcast band.

CROSLEY SETS NEW RADIO RECORD IN SEPTEMBER

CINCINNATI — A production in radio receiving sets during the six months ending Sept. 30 greater than that of any similar period in the company's history and an increase in employment payroll of approximately 100 per cent during the two-month's period ending Sept. 30, is the record claimed for Crosley Radio Corp. by Powel Crosley, Jr., president.

September production of Crosley refrigerators was 33 per cent greater than shipments during the preceding month, according to Mr. Crosley.

During the month of September the number of radio sets built and shipped exceeded by more than 25 per cent that of the highest September production in the history of the concern.

Name New Distributors For Automatic Washer

NEWTON, Ia. — Automatic Washer Co., manufacturer of Automatic washers and ironers, have appointed the following distributors:

Chanslor and Lyon Stores, Inc., San Francisco; Newark Distributors, Inc., Newark, New Jersey; and the Glasco Electric Co., St. Louis. Latter company has branches in Kansas City and Joplin, Mo.

Radio Advertising Methods Compared By G-E Sales Promotion Men

(*Concluded from Page 1, Column 4*)

vertising is considered, of course, a door-opener, and a natural introduction for the salesman."

After observing that nobody yet knows the best way to use radio, even after experimenting with it for five years, Mr. Daily strongly advocated the use of short "spot announcements" of 30 or 45 seconds, without entertainment programs, as perhaps the best value in radio today.

Gordon Craig, sales promotion manager of Gentsch & Thompson, Boston G-E distributorship, concurred with Mr. Daily, and maintained that the use of these brief commercial announcements was the best advertising value this company had ever obtained in Boston.

Three contrasting types of radio programs were presented by Clay Miller, sales promotion manager of James & Co., St. Louis; H. A. Pendergraph, G-E distributor in Nashville, Tenn.; and Edwina Nolan, home service director, who told about the Bess Meals program used in Los Angeles.

Both the St. Louis and the Nashville programs are cooperative, and go on the air for half an hour each day with home economics programs. Six different sponsors divide the cost, each having one period a week largely to himself.

In each case the broadcasts are made from a glass-enclosed General Electric kitchen, and are observed by large audiences. Thus, even though the demonstrators may be talking about the products of a meat packer or of a chain store, they must use the General Electric kitchen in their task. In St. Louis a complete General Electric kitchen was sold to station KMOX for the broadcasts. In Nashville the broadcasts were made from the distributor's showroom floor.

Los Angeles promotion is built around the weekly bulletins (containing menus for the week) issued by Bess Meals. These bulletins are not mailed, but broadcast listeners are told to call at the showrooms of distributors and dealers for them. Salesmen also use the bulletins as door-openers.

The conference was strictly informal. Only occasionally did a speaker rise to his feet. For the most part, the men just sat around and talked over their problems, with Walter Daily directing the course of the conversation. All that was missing was the fireplace.

Other speakers included, on Monday, P. B. Zimmerman, manager of the General Electric refrigeration department, who talked about "The Sales Promotion Manager's Job." James A. Nolan, from American Telephone and Telegraph Co., then took up the subject of "Telephone Book Listings"; while phases of "Outdoor Advertising" were discussed by two men, H. A. Rockwell of Outdoor Advertising, Inc., and Armin Friedman, Criterion Service, Cleveland.

Following W. L. Stensgaard of W. L. Stensgaard & Associates, Inc., Chicago, who treated "Department Store Window Display," A. L. Scaife, newly appointed manager of the G-E retail division in Cleveland, explained the training course for salesmen the company is offering.

In the afternoon the conference listened to Sam Nides, R. Cooper Jr. sales promotion manager from Chicago, tell about the "Chicago Literature Plan" of promotion.

"Newspaper Cooking Schools" were discussed by J. W. Inglefield of Home Economics Service Corp. in New York City.

Tuesday morning R. W. Evans, sales promotion manager with Ochiltree Electric Co., explained the Pittsburgh distributorship's method of "Working with Dealers." A discussion of the fall Stock Market sales contest was contributed to the program by Jean DeJen, who has charge of this activity.

Two talks on "Newspaper Advertising" were presented by Charles Mears of the Cleveland *News* and H. G. Selby of Maxon, Inc., who dealt particularly with the mechanics of newspaper advertising in 1934. Speaking on "Radio Cooking Schools," Gordon Stick of Radio Cooking Club of America, Inc., Baltimore, concluded the morning session.

Movie sales promotion was the chief topic of discussion in the afternoon.

Mr. Nides gave a detailed explanation of his promotion program which has been built around the G-E kitchen movie, "Just Around the Corner," starring Bette Davis, Warren Williams, Dick Powell, Joan Blondell, and other Warner Bros. players. The picture has appeared in hundreds of theaters all over the country.

An analysis of results of the showing in 50 theaters, chosen at random, revealed nearly half a million paid-admission theater goers. Sales realized directly from this activity have numbered 77 refrigerators, 7 ranges, 3 dishwashers, and 20 other appliances.

"Movie Distribution — Theatrical," and "Movie Distribution—Non-Theatrical," were discussed by X. F. Sutton of Sound Pictures, Inc., Cleveland, and F. H. Arlinghaus, Electrical Research Products, Inc., New York City, respectively.

The WTAM Players of Cleveland dramatized a radio program which they offered as a suggestion for radio advertising.

Further information on radio came from R. R. Harkness of Crowell Publishing Co., Chicago, who told of the radio tie-up being used by *Woman's Home Companion*.

Use of the kitchen coach in sales promotion work was outlined by A. A. Uhalt, head of the dealer division, while J. R. Poteat of the range department talked about "The Electric Cookery Idea."

Mr. Daily concluded the afternoon session with a timely discussion of the refrigeration code under the NRA.

Kelvinator Plans Letter-Writing Contest

DETROIT—A national letter-writing contest, forming part of a complete sales promotion activity, will feature Kelvinator's 1933 Christmas sales campaign, first announcements of which will appear in mid-November when national publications carry the first advertising on the contest.

The contest will be open to all housewives. Subject for the letter will be "Why I Want a Kelvinator for Christmas." First prize will be the choice of any Kelvinator in the company's entire line. Twenty-four other prizes — all Kelvinator household models—will be awarded for other letters.

Every contest entrant will get from the Kelvinator salesman who contacts her during the campaign a numbered envelope, these envelopes assuring proper credit to the salesman whose prospects are among the prize winners.

The 25 salesmen who have contacted the prize winners will receive cash bonuses of value equal to the prize. Any prize winner who has purchased a Kelvinator during the campaign will be given the model she ordered.

Majestic Foremen Hold Weekly Schools

CHICAGO—To promote better understanding of problems faced by various departments in Grigsby-Grunow Co.'s refrigeration division, heads and sub-heads of those sections have begun a series of weekly "schools," where detailed discussions are held regarding the nature of every department's work.

Most of the subjects are of a technical nature, and concern the construction, operation, inspection, and improvement of the product.

DEALERS MAY ADOPT UNIFORM FRANCHISE

(*Concluded from Page 1, Column 4*)

erators and other electrical appliances will probably be settled at the Nov. 1 meeting.

The franchise is designed to guarantee the retailer a profit and to protect him from destructive competitive practices. It limits trade-in values to 10 per cent of the new set to be purchased, prohibits distributors from selling sets at a discount to anyone (including even employes), and prohibits distributors from making deliveries direct to homes.

Stock Requirements

It also restrains distributors from selling at a dealer discount to persons who keep less than three radios in stock at one time.

According to present plans, the local Better Business Bureau will be retained to enforce the agreement.

The movement has resulted in a reorganization of the Detroit dealers into the Greater Detroit Radio Dealers Association, with the following officers elected to head the new group:

Walter Mathews, Sparton Radio Shop, president; Alex G. Campbell, Radio Headquarters, vice president; Arthur Sievert, Jr., Sievert's Radio Shop, secretary; and Robert Dennison, Payne Radio Sales & Service, treasurer.

Directors of Association

Directors are: Harold Perkins, Perkins Radio Co.; Jack O'Connor, Jack O'Connor, Inc.; Eugene C. White, Gardner-White Co.; Joseph Adcock, W. E. Metzger Co.; Sam E. Lind, Lind's; Daniel O'Connor, J. L. Hudson Co.; Frank W. Hackett, Good Housekeeping Shops; William Serlin, Serlin's; Stanley Kramer, Enggass Jewelry Co.; Lee Kennedy of Pontiac; Jay Grinnell, Grinnell Bros. Music Houses; and H. C. Huntington, Weil & Co.

BEER COOLING

Useful Thermostatic Valve Hook-ups For Bottle & Draft Beer Coolers

By D. D. Wile, Accessories Laboratory, Detroit Lubricator Co.

THE thermostatic expansion valve finds wide application in the fields of beer cooling and storage. Operation of the valve is comparatively simple, and with a thorough understanding of its operation many useful hook-ups can be devised to meet an almost unlimited range of applications in beer cooling.

The well-known *automatic* expansion valve contains one bellows which reacts to suction pressure. The *thermostatic* expansion valve contains two bellows which work against each other. The bellows in the valve, reacts to the low side pressure and tends to close the needle on increasing pressure just as in the automatic expansion valve. The other bellows reacts to the pressure generated by a thermostatic liquid in the bulb. These two bellows work against each other through the rigid push rod with the result that the valve controls the difference between the temperature of the bulb and the temperature of the refrigerant, in other words, superheat.

Bulb on Suction Line

The bulb is usually attached to the suction line as close as possible to the evaporator. The evaporator coil is then completely cooled without permitting refrigerant to enter the suction line. Due to the reaction of the two bellows the valve simply keeps the coil full of refrigerant; *it does not control pressure,* and *it does not directly control temperature.*

Pressure in the low side is controlled by the switch which starts and stops the motor just as in a flooded system. *The thermostatic expansion valve keeps the evaporator completely refrigerated.* When the compressor stops, the rise in pressure in the low side causes the valve to close immediately and stay closed until the compressor again starts.

The two bellows are of slightly different area and the springs are so arranged that the completely refrigerated condition is maintained on either low or high temperature applications. Valves leave the factory properly adjusted and generally need no further adjustment.

Some thought must be given to the location of the thermostatic bulb, as this bulb must remain cool during the off cycle of the compressor. If the bulb warms up faster than the evaporator coil, the valve will open and cause a temporary flooding of refrigerant into the suction line when the compressor starts. Proper location of the thermostatic bulb is the most important consideration when installing thermostatic valves. The following examples demonstrate proper application.

Bottle Storage

Bottle storage compartments are sometimes cooled by a fin surface coil, but better results are generally obtained by soldering tubing directly to the liner of the compartment. Fig. 1 shows the conventional method, and in this case the tube is attached to the outside of the liner and makes a neater job than when located on the inside.

The diameter and length of tube will depend upon the compressor size, but it will seldom be necessary to locate tubes closer than 6 in. In most cases two or three turns of ½-in. tubing will be plenty.

In order to obtain rapid cooling, the control switch should be set to stop the compressor at a pressure corresponding to 20° F. or less. The expansion valve adjustment should then be turned out so as to starve the coil.

The expansion valve bulb should be clamped to the end of the evaporator coil so that it is in good contact with both the coil and the liner near the bottom of the compartment.

When starting up warm, or after the introduction of a warm load into the compartment, it will be found that the liner will be completely refrigerated. This is due to the warm load transferring heat rapidly to the bulb, thus keeping the valve open sufficiently to refrigerate the evaporator coil completely.

As the compartment is cooled down to the desired temperature, the valve tends to shut off and starve the coil, until finally only a small portion of the tubing near the top of the liner receives refrigeration.

Hook-up for Low Temperatures

Fig. 2 shows a different method of applying tubing to the side of a compartment liner. This method is particularly useful for low temperature storage and also in applications where it is necessary to keep the suction pressure as high as possible, due to other units connected in multiple or for the sake of higher efficiency.

The method of bending the tubing forms many small traps for the liquid to settle into during the shut-down period without the possibility of the liquid accumulating at the end of the coil and flooding into the suction line at the start of the cycle. With this hook-up the adjustment of the valve can generally be left as received from the factory.

The arrangement shown in Fig. 2 is not as satisfactory as that shown in Fig. 1 in cases where it is necessary to operate at a low suction pressure, as in this case only one side of the liner would be cooled if the valve was adjusted to starve the coil, while in Fig. 1 all cooling is accomplished around the top of the liner when the coil is starved.

Liquid Prevents Cooling of Bulb

Particular attention should be given to the method of soldering the liquid line to the compartment liner in Fig. 2. The heat of the liquid is used to prevent the cold effect from the coil inlet reaching the bulb attached to the outlet end of the evaporator.

This is accomplished (as shown in Fig. 2) by soldering a portion of the liquid line to the liner between the points where inlet and outlet connections of the valve are soldered to the liner. During the off cycle refrigerant stops flowing through the liquid line and allows the bulb to remain cool and keep the valve closed tightly.

Where it is impossible to attach the liquid line as shown in Fig. 2 it may be advisable to construct a heat exchanger by soldering the liquid line to the suction line for several feet of its length near the evaporator coil. Either arrangement will decrease sweating of the suction line and increase the efficiency of the system.

Keg Beer Cooling Compartments

In keg pre-cooling compartments, the thermostatic expansion valve finds its use in connection with fin surface coils placed horizontally at the top or vertically at the back or side. Where space permits, the horizontal coil at the top provides very satisfactory cooling.

Where it is necessary to use vertical coils at the back or side it is wise to use a shallow coil located near the top rather than a deep coil, as the shallow coil will give better temperature distribution. The keg storage compartment can also be cooled by soldering tubing to the liner as shown in Figs. 1 or 2.

Draft Beer Cooling

Fig. 3 demonstrates an interesting application of the thermostatic valve cooling a water bath, and maintaining an ice reserve to take care of peak demand. The water bath can be used to cool drinking water, carbonated water, or beer coils. Also, by installing partitions, the water bath can be used to cool bottle goods, if there is no objection to wet bottles and loose labels.

It will be noted that refrigerant enters the evaporator coil at the bottom, and the suction line is looped down towards the bottom so that the thermostatic bulb can be clamped at a position where it will limit the amount of ice formation.

The system can be controlled by either a pressurestat or thermostat, either of which should be adjusted to stop the compressor when the suction pressure is pulled down to the equivalent of 20° F. or less.

In this case the thermostatic expansion valve is adjusted for a high degree of superheat by turning the adjusting screw out. The actual setting may be such that the thermostatic bulb maintains a temperature of 35° F. when the evaporating temperature is 20° or less.

Set for High Superheat

When starting up warm, or after the addition of a heavy load, it will be found that the evaporator coil is almost completely refrigerated, but as the temperature comes down the valve begins to starve the coil, until finally when the ice reserve builds out far enough to touch the thermostatic bulb, the evaporator coil is almost completely starved.

In connection with the cooling of a water bath it should be kept in mind that water reaches its maximum density at 39.1° F. Below this temperature, circulation reverses and the coldest water circulates upward instead of downward.

Grouping of Coils

Therefore, to maintain a water bath at any temperature below 39.1° F. the coils should be grouped near the bottom, as shown in Fig. 3. Furthermore, by making the tank deeper and extending the beer coils below the level of the refrigerant coils, the last few turns of the beer coil can be located in the 39.1° water and thus insure that the beer will always be drawn at this temperature, which is very near the generally accepted proper temperature for beer.

In the reserve ice bath arrangement shown in Fig. 3 from 20 to 30 ft. of ½-in. tubing will be sufficient for a single beer tap. A ¼-hp. compressor will generally be large enough to build up an ice reserve capable of handling any ordinary peak load, however, there may be special cases where a larger compressor might be necessary. The beer coil should consist of at least 70 ft. of ½-in. block tin tubing.

Ice Reserve Useful in Cleaning

This ice reserve hook-up has a very desirable feature in connection with steam or hot water cleaning. When steam is blown through the beer coil, the mass of water prevents any excessive rise in pressure in the refrigerant coil, and therefore the system is entirely unharmed during the short application of steam or hot water to the coil.

Any number of cooling units, even of various types, controlled by thermostatic expansion valves, can be operated in multiple. Any of the above hook-ups, connected in multiple, will give close temperature control. The compressor control switch should be set to cut out at the temperature required in the coldest unit. The adjusting screw of the thermostatic expansion valve used on each of the warmer units should be turned out sufficiently to obtain the proper temperature.

Dry Storage

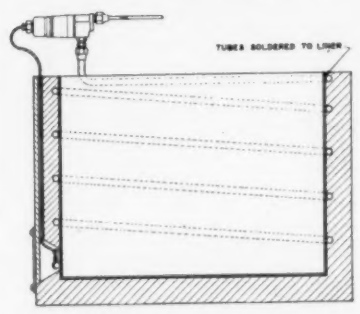


Fig. 1—Beer bottle cooler of the conventional dry storage type, described on this page.

New Way to Solder Tubing to Liner

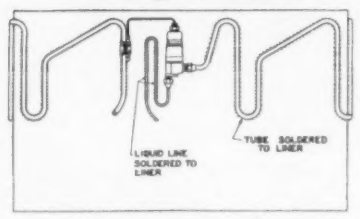


Fig. 2—New method of soldering tubing to the liner of a bottle cooler.

Sweet Water Box

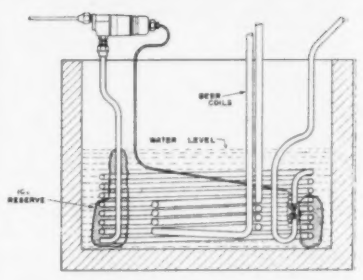


Fig. 3—Refrigerated water bath for draft beer cooling. Note the formation of an ice reserve.

NEW FIRM TAKES OVER AIR-CONTROL SYSTEMS

NEW YORK CITY—Air Conditioning Industries, Inc., of this city has acquired a majority interest in Air-Control Systems, Inc., of Chicago, manufacturer of Zephyr air-conditioning equipment. The Chicago firm will function as a patent holding and licensing company. W. D. Jordan, former head of Air-Control Systems is the new president of Air Conditioning Industries, Inc.

The manufacturing plant will remain in Chicago temporarily, Mr. Jordan states, while executive and sales offices are now located at 101 Park Ave., New York City.

MERITS OF ELECTRIC BEER COOLING TOLD TO BOTTLER'S GROUP

LOUISVILLE, Ky.—Importance of electric refrigeration in the field of beer dispensing, and advantages accruing to beer retailers who use mechanical cooling equipment were outlined by A. H. Reinach, manager of Kelvinator Corp.'s national users department, when he addressed the American Bottlers of Carbonated Beverages in convention here recently.

Early in his address, Mr. Reinach stated that "the buying public today fully appreciates the economic value of electric refrigeration," then explained how this public acceptance may be capitalized upon by beer retailers.

"The success of the beverage industry also depends to a very large measure on public acceptance," he said. As manufacturers and distributors of a product requiring refrigeration, you might seriously consider the fact that electric refrigeration . . . can be utilized as a method of gaining and holding patronage.

"Electric refrigeration provides definite temperature control," said the speaker in presenting its advantages. "The supply of refrigeration is regulated automatically. Electric refrigeration units are automatic and dependable.

"Electric refrigeration units are low in cost and they utilize a type of power that is practically universal and comparatively cheap. The modern refrigerating unit can be operated at a lower cost per pound of ice-melting effect than ice.

"The consumer instinctively has a greater degree of confidence in the products of a retailer who utilizes electric refrigeration."

Mr. Reinach then went into some detail on the subject of comparative costs of electric refrigeration and ice. "In actual practice," he said, "electricity at 11 cents per kilowatt can be compared with ice at 30 cents per 100 lbs.

"If the retailer is purchasing ice at 30 cents per 100 lbs. delivered, and can buy electricity at seven cents per kilowatt, he will show a saving of approximately 36 per cent in his refrigeration cost.

"If he is paying 40 cents per 100 lbs. of ice and seven cents for electricity, his savings would be approximately 50 per cent. A retailer using 100 lbs. of ice per day on the 40-cent basis would show an actual saving of about 18 cents per day, or better than $60 a year.

"There are thousands of beverage retailers today using ice who could pay for an electrically refrigerated beverage cooler with the savings that they could effect in refrigeration costs in a year or possibly less," Mr. Reinach asserted.

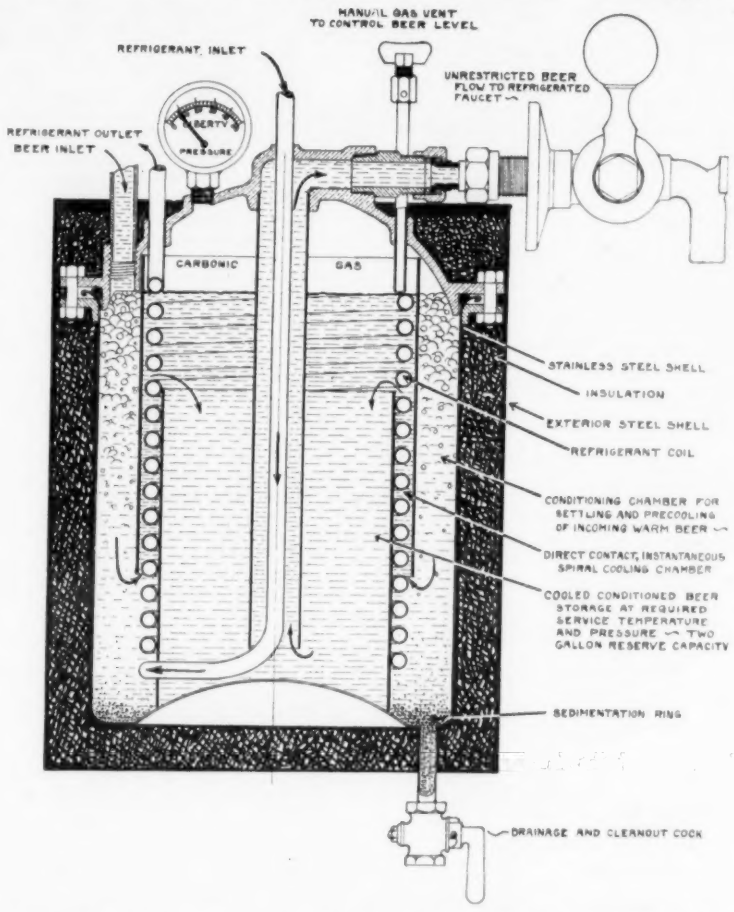
Patronage of the beer-drinking public will go, for the most part, the speaker said, to dealers who serve beverages at the most palatable temperature and from attractive and sanitary dispensing equipment.

Then in a direct statement to the bottling company executives, this:

"It is up to you to educate your dealers on the fact that properly served beverages mean more profit and more prestige to him. Your dealer has the right to look to you for leadership and advice.

"He should not have to look for it, for your success in this highly competitive field is definitely linked to his success. Electric refrigeration is no cure-all, but it can readily be made the practical means of a successful selling campaign."

New Beer Cooler of Novel Design



Thorough cooling and proper conditioning of beer are claimed for the Liberty beer cooler which is designed to operate, as shown above, by the counter-flow principle applied to refrigerant and beer.

* * *

LIBERTY BRINGS OUT BEER COOLING TANK

PROVIDENCE, R. I.—A new type, mechanically refrigerated beer-cooling unit, in which the conventional block tin beer coil has been eliminated, was recently introduced by Liberty Refrigeration Corp. of this city.

The "Libeerty" cooler, as it is called is an all-enclosed cylinder, something like the Zahm tank in appearance. The interior is made up of four different sections.

Beer enters at the top of the stainless steel container and goes into a narrow conditioning chamber where it settles and is pre-cooled. The inner shell of this chamber is cut away at the bottom so that the beer can flow up and through the section in which the direct refrigerant coils are placed, this section encircling an inner tank.

From the coil chamber the beer goes into the 2-gal. main storage section, where it is kept under carbonic gas pressure.

Beer is taken out of the bottom of the tank through a tube which leads to the draft arm. The refrigerant intake line runs through the center of this tube, keeping the beer cool on the final stage of its journey to the spigot.

The Liberty cooler is equipped with a pressure reducing inlet valve, which may be set at a pre-determined serving pressure and maintained as long as desired. Temperature control is by the back pressure on the compressor.

NORGES IN APARTMENTS

NEW YORK CITY—Hergot Holding Co., Inc. here recently installed Norge refrigeration in four of its apartment buildings in greater New York.

New Beer Cooler Has 15 Gallon Capacity

KENOSHA, Wis. — Specialty Brass Co. of this city has introduced a new type of beer cooler, chief feature of the device being the construction of the compartment through which the beer flows, the conventional coil being replaced by a hollow cylinder, with exterior molded in a design similar to that of a spiral thread screw.

A housing fits over the cylinder, so that the beer flows through the ridges made by the cylinder's construction.

Direct-expansion coils are wound around the housing, thus cooling the beer instantaneously as it travels its spiral course between the inner cylinder and the outer housing.

By means of a cold control switch on the front panel, the unit can be set to cool the beer to any temperature desired. The Specialty unit has a capacity of 15 gal. per hour when operating with a ¼-hp. compressor

Easy cleaning is a principal feature of this unit. By unscrewing a large master nut at the front of the cooling cabinet, the cover and draft arm and inside hollow cylinder can be removed and washed in a pan of water. With these parts removed, the inside of the housing is also easily accessible for washing and rinsing.

CALIFORNIANS DESIGN DRAFT BEER COOLER

OAKLAND, Calif. — The Rapidex Draughtmaster, a beer-cooling unit of radical design which features direct cooling of the beer by means of direct expansion coils, and positive control of the beer pressure, is now being marketed by Rapidex Corp. of this city.

Rapidex Draughtmaster cools beer by direct transfer of heat between the refrigeration coil and the liquid. The beverage is drawn from the keg into a solid porcelain container of 1-gal. capacity. In this container a refrigeration coil is immersed.

A special valve forms the connection between the container and the spigot, and this valve automatically controls the gas passing through the beverage.

Beer is maintained at a pre-determined temperature in the container by an adjustable thermostatic control.

The shortness of the connection between the container and the spigot is said to be an aid in the cleaning operation. The whole device can be opened up for cleaning by loosening a single wint-nut and removing the porcelain container.

Rapidex Draughtmaster is made in one-beverage and two-beverage units.

The one-beverage unit operates with a ⅛-hp. compressor and the two-beverage unit on a 1/5-hp. compressor.

The Rapidex Draughtmaster can be used by itself as a bar fixture, or as part of a beer dispensing cabinet.

Men's Clothing Store Installs Air Cooling

DETROIT—Whaling's, Inc., downtown men's clothing store here, has recently installed a 5-ton air-conditioning system, employing a 5-hp. Universal Cooler compressor and Trane cooling unit.

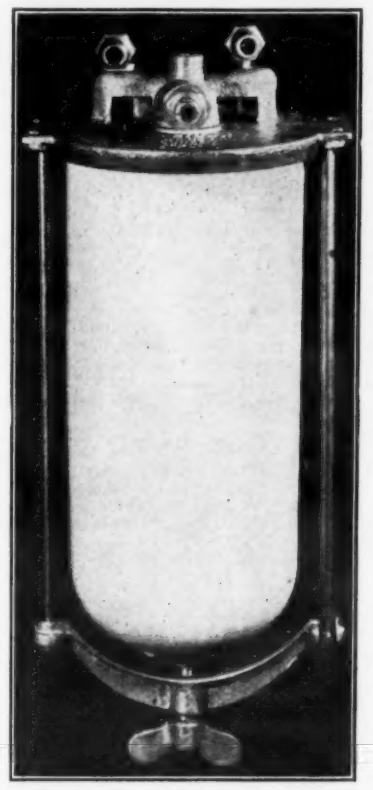
The Trane suspended type cooler is placed over the main entrance of the store. Temperature control is by means of a wall-type thermostat.

The Universal Cooler condensing unit is a model AW-5003 using double tube counter flow condenser. The installation was supervised by Universal Cooler Corp. engineers.

SMITHERS HEADS BRANCH

OMAHA—Harold Smithers has been appointed manager of the Omaha branch of W. M. Dutton & Sons Co., Nebraska Norge distributor.

Instantaneous Cooling



New "Rapidex" beer cooler (see announcement at left) designed to cool draft beer.

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To encourage the development of the art.
To promote ethical practices in the business.
To foster friendly relations throughout the industry.
To provide a clearing house for new methods and ideas.
To broadcast the technical, commercial, and personal news of the field.

VOL. 10, NO. 8, SERIAL NO. 240, OCTOBER 25, 1933

Regimentation vs. Standardization

ACTION of President Roosevelt in exempting from the NRA requirements local establishments of all sorts employing fewer than five people and located in towns of 2,500 population or less is just another sample of that astute statesman's most praiseworthy asset—his flexibility. Industry might become quite disheartened at the burgeoning of a full-blown plan of economy by the government were it not for the Chief Executive's liberal attitude and his willingness to change any of the provisions of the plan which do not seem to work.

In the hands of a Woodrow Wilson, the NRA might work almost insufferable hardship to thousands of business enterprises, small and large. Wilson, you may recall, would not listen to a single change in any of the provisions of his brain child, the League of Nations. When the United States Senate saw some flaws in the plan, and proposed a set of reservations, Wilson refused to compromise. Result: America did not join the League of Nations.

Ramblings of Discontent

Every once-in-a-while, rumblings of discontent and dissatisfaction with the NRA program rise out of the West. Revolt in Nebraska, led by no less a person than Governor Charles Bryan, is perhaps the most serious of the scattered uprisings against the recovery administration.

Such rumblings and signs of unrest, however, are never allowed to reach a head. If the administration finds a measure of reason in the protests, it promptly changes the rules so that the dissenters may be satisfied.

The task of regimenting a whole nation of "rugged individualists," of drilling a people only a few generations removed from the pioneers into lock-step formations is perhaps one of the most colossal of all time; and one of the chief reasons for the difficulty of the task aside from its unparalleled magnitude, is the fact that regimentation itself is so fundamentally wrong.

Standardization of the Twenties

In the Years of Plenty, the free-spending twenties, when our economic structure was pyramided so crazily, many critics of the social order began to get disturbed by standardization. Mass consumption of mass production was, they pointed out with no little alarm, making the American people ride in identical automobiles, listen to the same radio music, wear similar clothes, sit in theaters all over the country which offered simultaneously the same screen entertainment, and sleep on the same kind of beds.

This, they thought, was bad. Pretty soon we might all begin to think alike, they believed, if we kept on using the same things that everybody else used.

Critics of Standardization Silent

Comes now regimentation, a bogey-man which is really much more sinister than standardization, and the social critics of yesteryear are largely remaining silent.

Making *things* all alike is not nearly so reprehensible as making *people* all alike, and that is precisely what regimentation tends to do. Regimentation proposes to make everybody work the same number of hours, receive the same salaries, buy at the same time, sell at the same time, kill off their pigs and plow under their corn at the same time, and put their money in the bank at the same time. It is not altogether unreasonable to believe that were regimentation to be followed to the furthest extent of its implications, disaster might result, not only to the nation, but to the race. America's greatest insurance against the folly of regimentation at present is Franklin D. Roosevelt.

His liberalism and his willingness to change are two great factors in the administration of a recovery program which is making use of the regimentation idea as one of the first means to its end.

Purposes of Roosevelt Program

Purposes of the Roosevelt program are:

(1) To instill hope, and to supplant distrust with confidence.

(2) To straighten the nation's credit and financial tangle.

(3) To build employment; and, as a reward to the employer, to quash the chiseler.

(4) To increase consumption.

It should be noted that many of the powers which the President has been granted by Congress for the New Deal he has not exercised. He has not, for instance, touched inflation (although the $4,000,000,000 he has added to the public debt, of which $22,000,000,000 already was outstanding, is actually a species of inflation). Also, the President has reserved the right to change any provision in any code whenever he sees fit. Hence, if the President's re-employment survey reports that the number of men put back to work as a result of the NRA is not sufficient to satisfy him, it is entirely possible he will boost provisions of the various codes so as to re-employ more workers.

If none of these measures work, the President will no doubt be off on a new tangent, cutting and trying, picking up and dropping until he finds the right working solution. The chances of the nation's industrial machine getting bogged down in a mire of regimentation indeed appear slight.

WHAT OTHERS SAY

EQUILIBRIUM

CENTRIFUGAL force keeps the Earth from rushing into the Sun. The force of attraction keeps it from flying away from it. Thus, through this nice balance of forces, the human race is kept from being consumed by heat or perishing from the lack of it.

Social equilibrium has been maintained, even though in crude fashion, by the balancing of opposing opinion in politics, religion, legislation, and litigation. Overwhelming majorities have hitherto been considered undesirable because of their tendency to overlook the rights of minorities.

All of which brings up the question: What would happen to us if and when the A. F. of L. should reach its professed goal of 20,000,000 membership?

General Johnson answered this question during his address to organized labor last week, by stating that a labor majority such as this would naturally have to submit to government control. "Fully organized and unchecked labor," said he, "could exploit and dominate a whole nation."

We are inclined to ask General Johnson who he thinks would compose the government which is supposed to do this regulating, when and if the A. F. of L. should control 20,000,000 votes out of a total number cast of less than 40,000,000?

If the representatives of a mere two or three million organized workers have demonstrated their ability to so dominate politics and policies as to twist the emergency Recovery Act, professedly a temporary measure, into a serious threat of permanent abrogation of well-defined constitutional rights, what could they not accomplish with tenfold power?—*The Iron Age*, Oct. 19, 1933.

Elfenbein Says American Home Is Still In Back-Breaking Age

(*Continued from Page 1, Column 3*)

dent of the General Electric Co.; Julian Elfenbein, editor of *House Furnishing Review;* R. W. Turnbull, merchandising department, General Electric Co., Bridgeport, Conn.; John Guernsey, editor of *Retail Ledger;* Tom Beck, editorial director of *Collier's*; P. B. Zimmerman, Ralph Cameron, W. J. Daily, Al Uhalt, Jean de Jen, Edwina Nolan, J. T. Dickson, D. C. Spooner, Jr., H. F. Barnes of the General Electric Co.; and Charles Francis Coe, well known author who acted as chairman of the conference.

The potential market for household electrical appliances was stressed by Mr. Elfenbein.

"I am told that in order for every home in this country to be completely electrified, you would have to sell five billion dollars worth of domestic electrical equipment and appliances," he said. "I am also told that the use of this equipment would immediately triple the amount of domestic electric load.

Electric Range Load

"Preston Arkwright, chairman of the Electric Cookery Council, says that the average home without an electric range for instance consumes 500 kwh. annually, at 6 cents per kwh. that is about $30.00 a year. The average home with an electric range, says Arkwright, consumes 2,200 kwh. at 6 cents per kwh., that would be $135—$100 more in electric power for one consumer by the sale of one appliance.

"This is what has inspired utilities in various sections of the country to rent electric ranges at 30 cents per month. I would think that if utilities could triple their load, it would be to their interest to give Mrs. Consumer promotional rates, the same as they give the large private users of electrical energy.

Back-Breaking Age

"With all our progress in research, and in invention during the past 50 years the American home is still in the Back Breaking Age. There are 30 million homes in the United States.

"29,000,000 have no electric range or dishwasher.

"27,000,000 have no electric refrigerators.

"24,000,000 have no electric fan or percolator.

"24,000,000 have no wasihng machine.

"15,000,000 have no radio.

"22,000,000 have no electric toaster.

"21,000,000 have no vacuum cleaner.

"11,000,000 have no electric iron.

"Ten million homes are not even wired for electricity. Only 17 per cent own an electric refrigerator. Only 30 per cent of the people own a common wood ice box. Most Americans have not even the basic 20th century conveniences.

"One-fifth are without kitchen sinks; one-third are without bath tubs; 39 per cent are without electric lights; telephones have been placed in two-fifths of the homes; 96 per cent are without an ironer; 53 per cent without a vacuum cleaner; 60 per cent without a washer; 90 per cent of the wired homes, own an electric iron but only 3 per cent own an automatic adjustable iron.

"Despite the millions of dollars utilities and manufacturers have spent to advertise electric appliances, the non-automatic electric iron is the only item with a wide distribution, outside of a light bulb.

Appliance-less Homes

"The number of wired homes tripled in 10 years and so there are 4,000,000 more wired homes without electric washing machines than there were 10 years ago. There are 7,000,000 more wired homes without electric refrigerators than there were 10 years ago. There are 9,000,000 more wired homes without electric ranges than there were 10 years ago.

"Most potential markets decrease in a period of 10 years. Here is a market that is actually increasing. This shows that new homes have been built and homes wired faster than these appliances have been sold. And a similar situation exists with respect to all household electrical appliances except the hand iron.

"The Electrical Show in Madison Square Garden in New York City, which just closed, was a pretty good index of potential market. A million and a half dollars worth of electrical appliances were sold that week. Two hundred thousand people saw the show and 122,000 paid 25 cents each to attend it.

New Sales Hookup Needed

"The future of electrical house furnishings depends upon a new kind of coordinated selling between manufacturer and utility and department store.

"We do not hold view that department stores possess divine monopolistic right to supply all human needs. Nevertheless in the past five years the department store has advanced to a position of first importance in the merchandising of electrical house furnishings. The department store is a stable, mature, distributive institution.

"Previous to 1900, relatively few department stores did a volume in excess of $1,000.000. In 1932 department store sales, excluding chains was $2,700,000,000.

"There was a distribution census in 11 typical cities showing that of each $1,000 spent by the consumer, the largest amount—$145—went to department stores. The grocer came next with $115.

Facts on Sales

"Appliance sales in department stores were more than 20 per cent of the total appliances sold to consumers in 1932. As early as 1931 department stores sold more major electrical appliances than any other outlet, except utilities and sold more small electrical appliances by far than any outlet including utilities."

Mr. Zimmerman declared that the specialty appliance sales department of General Electric Co. this fall is enjoying the best sales curve in its history.

N. P. Wright of the May Co., Cleveland, expressed the fact that the average department store makes the mistake of assuming that a customer had decided to buy a major appliance, and hires a salesman who is not a specialist.

Good Demonstration Needed

"Major appliance sales," he said, "require a good demonstration which untrained salesmen cannot give. As to outside selling, any department store that attempts to have a lot of outside salesmen is headed for grief, because the cost is too high. To have an outside selling force operate efficiently there must be one good supervisor for every four or five salesmen to see that they do not misrepresent the product or the department store. It is better to have fewer well trained men who are well paid."

R. C. Cameron who, as the head of department store activities for the G-E specialty appliance sales department was host to the clinic, declared that one outstanding merchandise advantage in electrical appliances is that of a developed market made possible by years of effort on the part of the public utility and electrical specialty store.

Department Store Potentialities

"It is our opinion that we have yet seen but little of the part that the department stores can, and undoubtedly will, play in the future distribution of electrical merchandise," declared Herschel Lutes, divisional merchandise manager of J. L. Hudson Co., Detroit.

"Naturally, we store executives are prejudiced in favor of department stores. However, we recognize that the next few years are going to be a very crucial time in the history of retail establishments during that time. We believe there will be almost a life struggle in retail distribution with the large chain stores, the large mail order stores, the large department stores, and the specialty shops, being among the antagonists.

"The result may be the elimination of one or more of these contestants, or it may be the enhancement and enlargement of the scope and importance of any or all of them.

"Those of us whose life is spent mostly in department stores, and whose vision is consequently too narrow, have many reasons which we consider logical as to why future retail business should increase in department stores, and why department stores should enlarge their scope of activity and their assortment of all kinds of merchandise.

"Without question we have traffic. That traffic is naturally in a buying mood when it is in the store. They are much more approachable and will listen more attentively to a sales argument than they would if they were interrupted at home in the middle of a cleaning job or answering the door bell with something cooking on the stove that might burn.

Friendly Customers

"Our customers who comprise this traffic are usually in a peaceful frame of mind and have a friendly feeling for the store in which they are shopping.

"These customers also have considerable confidence in the institution where they do most of their trading and will more readily accept statements of performance and value than might be the case with lesser known organizations, particularly a specialty shop.

"Many of these customers have already a charge account in the large stores, and are quite familiar with the routine necessary in carrying on credit business.

"They also know that if they should

(*Concluded on Page 11, Column 1*)

Lutes Outlines Department Stores' Role In Electric Appliance Selling

(*Concluded from Page 10, Column 4*)

become obligated to the store for a large amount, that they will be treated civilly and given friendly consideration in the matter of collections and consumating the contract.

"These customers also know that any item sponsored and sold by the large stores will be unreservedly guaranteed and backed up by them, and that if it is not right or entirely satisfactory they will have no trouble in correcting the situation.

"They realize that in case a purchase needs repair or service of any kind, that they will get dependable, competent, and efficient service without undue delay.

"These customers are in the habit of watching the newspapers and other forms of advertising of their favorite stores and, therefore, anything under the signature of the store will be read by many more people than it would under a separate ad in some other part of the paper," said Mr. Lutes.

"By the same token, direct appeals either by mail, radio, or otherwise, will be more readily accepted and taken more sincerely than might be the case under the name of some one less well-known, and not in such close contact with the customer.

"These customers have learned to come to the large department store for a majority of their needs. Without any question they consider these stores a source from which they can obtain clothing, furnishings, furniture, home decorations, and their general needs.

Attentiveness Natural

"It is, therefore, only logical for them, while they are shopping around in this buying mood to listen attentatively and give serious thought to the purchase of electric appliances, both small wares and major items.

"This is a plea for liberalism. The injection of a wider activity on specialty selling in department stores has developed many problems. The transplanting of the specialty operation in which electrical merchandise has been cradled, into the fixed system of operation of a department store, has brought about many conflictions. The problems of each industry are foreign to the other," he stated.

"Let us have liberalism in attitude if you please. A liberal mind, and an open approach by both parties to these problems, will yield a rich harvest.

"In our contacts with various organizations about leased departments, and resale arrangements, we have boiled down what seems to us the points of fundamental difference in operation, between specialty selling crews operating a leased or resale department and an ordinary department store. These same factors seem to apply to the electrical specialties. They are as follows:

Differences in Operations

"The leased department and specialty operator:

"a. Spends more money for publicity.

"b. Spends more money for selling commission.

"c. Makes more radical statements in selling and advertising presentation.

"d. Takes a more aggressive attitude toward canvassing and high-pressure selling.

"Undoubtedly the succeeding speakers on this program will go into these and other problems at length. Suffice it for us to say that the problems are many and vital. Not the least of these is the seeming impossibility to transplant the high sales expense customary in specialty operation into the department store set-up.

"Turnover of salespeople is an important factor where we two industries seem to occupy the exact opposite views. Department stores feel that it is absolutely necessary for them to have an occasional special—for anniversary sales, etc. If not abused, this does help our volume materially.

Harmony Essential

"And sales promotion methods and campaigns must be harmonized and approved by both sides previous to their being launched," declared the speaker.

"The matter of direct competition between the selling organizations of manufacturers and the department stores in the same field is a real obstacle to the path of our success in selling your product. It forces us to purchase from our competitors who are also very aggressive and sometimes use strange tactics to divert the sale away from us.

"This source of irritation we can and must eliminate, in one manner or another. It may be that we can arrange a mutually satisfactory control; it may be necessary to have two lines, as one large refrigeration concern is now attempting to do; or it may be but probably will not be, the elimination of direct selling on the part of manufacturers.

"Certainly we stores would not ask this unless and until we ourselves are in a position to secure as much or even more volume, than these manufacturers' outlets.

"The specialty salesmanager, behind closed doors, we imagine, develops ingenious, clever, comprehensive, most thorough and detailed, and to their combined judgement, most efficient and capable selling drives.

"These are worked out to the last word—even the exact selling arguments to be used by the salesmen and their method of delivery. They are almost always accompanied by elaborate charts, pictures, printed salestalks, and arguments.

"They have attached proposed ads with cuts and mats available, and the exact wording to be used in the campaign. They also specify quantities to be purchased and assume that unless large quantities are bought the merchant will not be sufficiently interested to properly promote the item.

"The salesman takes this campaign and makes an appointment with the store executives to spring the plan. It is a long approach and exhaustive summary of the industry, the manufacturers, how this particular product is superior, etc. It actually takes hours to present it, much longer than the store men had anticipated," Mr. Lutes asserted.

"The store representatives have to listen when they are late for two other appointments with salesmen for some other item. The specialty salesmen senses their nervousness and drives on the harder. Finally the store men have the whole story and promise to take it up with their superiors.

Superiors Unsympathetic

"There are many violations of store policy and many points they know will never get approved. You see they realize that their superiors are not particularly in sympathy with this kind of hard pushing and high-presure selling. But they agree to try to sell the idea.

"The specialty man offers to appear personally and plead the cause with the store owners. But the store men are reluctant to bring these salesmen upstairs to talk about plans with which they know their superiors are not sympathetic.

"The store men then weed out all that they think they can get approved, and some points which they know will never be approved, and take them to the store owners. The advertising men, the service men, credit men, the accounting men, etc., meet and hear the plan presented to the store," he explained.

Conflicts with Existing Policies

"It conflicts with many and various policies strongly adhered to by these various department heads. The plan is altered and changed and modified so that it is not effective. But it is accepted with modifications, and we go into it.

"Sometimes it succeeds and sometimes it fails—and we have a warehouse full of slow moving merchandise. It takes months to move it, and stock records prove it was a costly experiment. Store owners become even more skeptical of such high-pressure selling stunts, and the next presentation is all the harder to have approved.

"The point in picturing this is that we as retail merchants feel that a closer understanding of our problem and policies would be beneficial to you in the initial formulation of such promotions, and would eliminate wasted effort and save a great deal of time for both of us," Mr. Lutes emphasized.

Some Effectiveness Lost

"Now let us emphasize the fact that department stores are successful in selling much merchandise. And specialty salesmen and shops are perhaps even more so. Each has worked out over a period of year what it believes to be fundamental principles of operation and they are effective for them. But they are not alike.

"And an admixture of the two plans, resulting from the compromise of two different angles, is less effective than either one would have been if used in its entirety.

"The specialty salesmen have always been too courteous to tell us what they think of us and of all department stores. But we can imagine sometimes how they feel, and we like them all the better because they are clever enough to keep their mouth shut.

"It is to be hoped that this conference will give them an opportunity to talk to us straight from the shoulder. We deserve it. Let us have it.

"From our point of view, almost every time we contact one of the electrical manufacturers with reference to a major promotion, it is more a question of how many of his various suggestions we can take, without interferring with our policy, than it is the merit of the offering," he said.

The chances are that at least three-fourths of his suggestions in the promotional line are absolutely contrary to our store policy, the method of operation, or are in some other manner objectionable to those of us who have the department store view.

"To us the specialty man is a creature who is bent on promotion—promotion—promotion. So are we, but we are so conceited that we imagine our more conservative methods win in the end. Perhaps we are wrong. Tell us so and why.

"We doubt if he understands our language when we talk turnover, markup, stock control. He seems absolutely unable to understand us when we do the unbelievable thing of trying to sell an item from a photograph, instead of buying a carload when we know there is at least some demand for it.

"And the department store man is unable to understand why the specialty man is always trying to fill his warehouse full of carloads of slow moving merchandise, when he is so hard put as it is to secure a satisfactory turnover for his executives.

Open-Minded Discussion

"Let us emphasize that all this is said in the hope that we may have frank and open-minded discussion of our problems. We know that there are all kinds of department stores, and all kinds of policies in department stores, but most of them will not readily accept the specialty selling methods.

"Let us hope this conference will help them to see the light. Without any doubt, the specialty salesmanager consults stores and tries to get their views before going into all these selling drives.

"But the stores are so inconsistent and so unlike, that any plan which he might present is likely to meet opposition from some of them.

"The plan we finally see is probably his attempt to make an average that will be acceptable to most.

"We department store men are woefully inefficient in merchandising electrical appliances and we know it. We have perhaps more shortcomings than even you suspect. We want to overcome them and we want you to help in doing so.

"We want to get your slant and your ideas and above everything else we want your capable and sincere help and assistance. We want you to teach us how to do it," he concluded.

Those who attended the clinic included:

J. A. McMillan, Rich's, Inc., Atlanta, Ga.; J. B. Ogden, mgr. elec. dept., and H. Lutes, div. mgr. mdse., J. L. Hudson Co., Detroit; F. C. Ellwood, dept. mgr., Ernst Kern Co., Detroit.

J. L. Henry, mgr. elec. appl., J. L. Hudson Co., Detroit; L. D. Jalkut, Gimbel Bros., New York City; N. P. Wright and E. Goldstein, adv. mgr., May Co., Cleveland.

T. A. Davies, mdse. mgr., home furn., and R. G. Roth, gen. mdse. mgr., Wm. Taylor Son & Co., Cleveland; R. S. Dubois, house furnishing dept., The Halle Bros. Co., Cleveland; J. Meeks, Wm. Taylor Son & Co., Cleveland; T. Stackpole, div. mdse. mgr., May Co., Cleveland.

C. H. Trueman, Max Levine, and Mr. Tracewell, A. Polsky & Co., Akron, Ohio; Mr. Foukal, Sterling & Welch Co., Cleveland.

M. G. Kaelin, mgr. appliance div., Kinney & Levan Co., Cleveland; Carl Schuele, Fries & Schuele Co., Cleveland; Wm. B. Wolff, M. O'Neil Co., Akron, Ohio; Richard Flanagan, adv. & S.P. mgr., McCurdy Co., Rochester, N. Y.

Jack Adams, L. S. Ayres Dept. Store, Indianapolis; J. J. Egan, mdse. mgr., Sage, Allen & Co., Hartford, Conn.; J. E. McConnaughey, mgr. house furn. dept., Joseph Horne Co., Pittsburgh; Robert Bond, Jordan March Co., Boston; F. K. Mansfield, William G. Webber Co., Salem, Mass.

John G. Sorg, resale mgr., and L. B. Tedesco, mdse. mgr., Larkin Co., Buffalo; Sidney Rosenberg, Associated Dry Goods Corp., New York City; Lee H. Christian, mgr., D. M. Christian Co., Owosso, Mich.

E. M. Farmer, Gould-Farmer Co., Syracuse, N. Y.; W. L. Stensgaard and A. Grossman, W. L. Stensgaard & Associates, Inc., Chicago; Lew Hahn, president, National Retail Dry Goods Association, New York City.

Alfred Auerbach, editor, and John Bronis, "Retailing," New York City; John Whelan, "House Furnishing Review," New York City; Julien Elfenbein, editor, "House Furnishing Review," New York City.

T. H. Beck, president, "Collier's," New York City; John Guernsey, editor, "Retail Ledger," Philadelphia; Harry Walsh, editor, "Pictorial Review," New York City; K. C. Clapp, editor, "Home Ware," Philadelphia.

Ell Bennett, publisher, "Electrical Dealer," Chicago; L. E. Moffatt, editor, "Electrical Merchandising," New York City; George Taubeneck, editor, "Electric Refrigeration News," Detroit; W. H. Crawford, Commercial Credit Co.

Charles Francis Coe, New York City; C. E. Pask, Electrical Housekeeping, Inc., Cleveland; T. B. Allen, district representative, G. E. Co., Philadelphia; M. F. Mahony, M. F. Mahony & Co., Cleveland.

T. K. Quinn, vice president, General Electric Co., New York City; P. B. Zimmerman, mgr., G-E Specialty Appliance Sales Dept., Cleveland; G. C. Davidson, Canadian G. E. Co., Toronto, Ont.

H. F. Barnes, Norman Townsend, E. W. Commery, N. Y. Boynton, C. O. Brandel, E. E. Potter, and P. D. Parker all of Incandescent Lamp Dept., G. E. Co., Cleveland.

W. J. Daily, mgr. adv. & sales prom. div., A. L. Scaife, mgr. retail div., R. C. Cameron, asst. to mgr., P. H. Dow, director G-E Institute, J. T. Dickson, and Jean DeJen, G-E, Cleveland; and Lou Maxon, Maxon, Inc., Detroit.

D. C. Spooner, Jr., and R. W. Turnbull, both of the merchandise dept., General Electric Co., Bridgeport, Conn.

DISTRIBUTOR FROM EGYPT VISITS MAJESTIC

CHICAGO—Peter Tallianos, director of the Egyptian Wireless Co., Majestic distributor in Alexandria and Cairo, Egypt, visited the Grigsby-Grunow Co. here recently, according to Harry J. Scheel, manager of the company's export department.

ENGINEERING

Choice of Refrigerant Metering Device Depends on Type of System Used

By Frank B. Riley, President, Riley Engineering Corp., Detroit

A DISCUSSION of devices of this character covers a very wide territory and involves not merely the various metering devices, but if carried to a logical conclusion would cover the entire range of refrigerants and the various applications of refrigeration to domestic, as well as commercial installations. An enumeration of the devices which have been, or still are used in various assemblies or applications follows. However, this is not a complete list but merely names those which have been most commonly used during the past 20 years:

1. Hand operated expansion valve.
2. Automatic expansion valve.
3. Thermostatic expansion valve.
4. Low side float valve.
5. High side float valve.
6. Capillary tubes.
7. Adjustable capillary regulators.
8. Liquid pump.

A choice between the above devices should be guided by the type of installation with which it is to become a very important part; by the kind of low pressure side, or evaporator, which it is to supply with refrigerant; and frequently by the kind of refrigerant which is to be used in the system.

Individual Preferences

Designing engineers may have some prejudices, or perhaps a "yen" it might be called, for a particular type of metering device, and will use it where another device might perform the work more satisfactorily. But in general it may be said that the choice should be made only after a careful analysis of all conditions entering into the proposed assembly, or installation.

It does not necessarily follow that because a high or low side float mechanism has been thoroughly satisfactory in a domestic refrigerator that it will work out satisfactorily in a dining car or truck installation.

We must consider all metering devices merely as pressure reducing means, or as a gate between the high and low pressure sides of the system by means of which a fairly constant pressure in the evaporator may be maintained. Some of these devices may be regulated to maintain any desired evaporator pressure, whereas others such as the float valves and liquid pumps cannot be adjusted or regulated.

Manual Expansion Valve

1. The hand-operated expansion valve is one of the oldest forms of pressure reducing devices, and ordinarily a valve of this kind requires the more or less frequent supervision of an attendant.

It is nothing more or less than a shut-off valve, usually with a cone pointed valve and flat seat which is capable of rather fine adjustment as to flow of refrigerant through the orifice in the seat.

This type of valve is still used in most of the large commercial installations where engineers are on duty throughout the day and night.

Automatic Expansion Valves

2. Automatic expansion valves are of the balanced pressure type and their design details are legion. By balanced pressure is meant that the pressure in the evaporator, working against a bellows or diaphragm (which is backed up by an adjustable spring), opens the needle valve as the pressure in the evaporator lowers (due to operation of the compressor) sufficiently to permit the spring pressure to overcome the resistance offered by the evaporator pressure on the bellows or diaphragm.

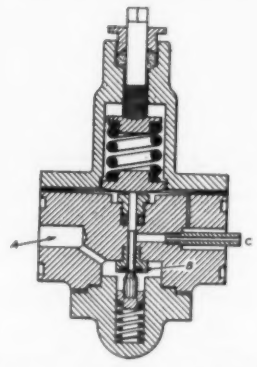
Just as in any device, an automatic expansion valve may be of excellent design—it may be well proportioned and the functions of the springs, bellows, needles, seats, etc., so harmonized that splendid results are obtained by the user. On the other hand, it may be so faulty in design and in the selection of materials, etc. that results are totally unsatisfactory; the valve may be noisy, chatter, the seats and needles may be of materials which inherently give poor service, the needle may stick in the guide etc. etc.

However, it may be said without argument that expansion valves are frequently blamed where the actual cause of failure is entirely outside of the valve itself. There may be dirt, scale, sand, acid, oil sludge, or metal dandruff of one sort or other that finds its way into the expansion valve with consequent disruption to the entire system.

Frequently without further analysis of the underlying trouble, the expansion valve is removed, another one put in its place, and the old one returned to the factory for replacement because it was found defective.

There is no disputing the fact that the action of the gas in blowing against the needle of an expansion valve gives a greater erosive effect than is the case in float valves where the liquid refrigerant passes through the valves as a liquid into a liquid. However, the automatic expansion valve has a definite place in small machine refrigeration and undoubtedly will survive as one of the adjuncts of the dry-gas system.

Automatic Valve



Section of an automatic, constant-pressure expansion valve (Alco).

Thermostatic Expansion Valves

3. Thermostatic expansion valves of various designs have been in use for a number of years, and it cannot be denied that for a great many different applications no other metering device has emerged that approaches it in general all-around effectiveness.

Without discussing the merits of the various thermostatic valves now on the market, it may be said that in general they are subject to the same outside influences of dirt, scale, acid, etc., to render their work difficult or unsatisfactory.

Any valve or metering device should be amply protected by filters, or adequate screens directly ahead of it if trouble is to be avoided. This is especially true where commercial installations are left to the hands of contractors who may not be as familiar with the work as they should be, or the necessity of keeping all piping, etc., absolutely clean and free of dirt, filings, chips, or moisture.

When it is realized that the refrigerant in the system must pass through the small orifice of the metering valve thousands of times during the life of the equipment, every precaution should be taken to see that the refrigerant reaches the valve in a clean, pure, and absolutely dry condition.

Thermostatic expansion valves are not to be used as two-temperature valves although they are widely used in multiple installations, and in fact the multiple installation was one of the first throught-of purposes for the thermostatic valve.

Editor's Note: Illustrative of a typical thermostatic expansion valve is the section of Detroit Lubricator's on page 14 of this issue.

In brief, a thermostatic expansion valve consists of first an ordinary automatic expansion valve to which has been added a power element consisting of a bellows, a tube, and a bulb containing a minute quantity of the same refrigerant that is used in the refrigerating system.

The valve is installed in the usual way but with the bulb of the power element in direct contact with the expansion piping, at the outlet, or suction end, or wherever it is desired to stop the frost on the suction line.

The bellows of the power element is connected with the bellows of the expansion valve in such a way that a change in temperature in the power element bulb is reflected in a change in pressure on its bellows, and in turn this pressure is communicated to the bellows of the expansion valve causing it to open or close.

It is not quite as simple as this, perhaps, because the expansion valve bellows has its function to perform and the locating of the power element bulb is quite a delicate affair. Locating it too far out on the suction line may cause a flooding of the coils, or too far in may starve the coil. Perfect operation is more or less a matter of proper location of the operating bulb.

The thermostatic expansion valve seems, for the time being at least, one correct answer to the quest for a metering device to handle properly the commercial applications of the small, or medium size machine installation.

Another device which performs the same function but which has not as yet come into general use is the thermostatic liquid shut-off valve which is placed directly behind the ordinary automatic expansion valve and, being responsive to temperature changes in the expansion coil, absolutely shuts off the flow of refrigerant when frost reaches the thermal bulb.

With this type of installation there is no danger of starving the coil or causing a flooding of the coil. It seems to act with great precision and undoubtedly will come into use as its desirable characteristics are realized.

A general summary of the two types of valves, i.e., automatic and the thermostatic, would seem to indicate that for the smaller direct expansion units with a single coil evaporator the automatic expansion valve is a highly satisfactory metering device and the problem of oil return is almost negligible with any of the modern refrigerants. However, where oil circulates more or less freely throughout the system and because of some particular winding of the coils, numerous traps may be formed, the oil may prove bothersome in attempting to get a perfect performance when considering pressures recorded by an instrument attached to the suction side.

This erratic performance on the chart, however, does not effect the refrigerating cycle adversely, and may be disregarded entirely in considering the efficiency of the system as a whole. These same comments apply equally to the thermostatic type of valve, and the reason why it is not more widely used in small domestic units is presumably because of the higher first cost.

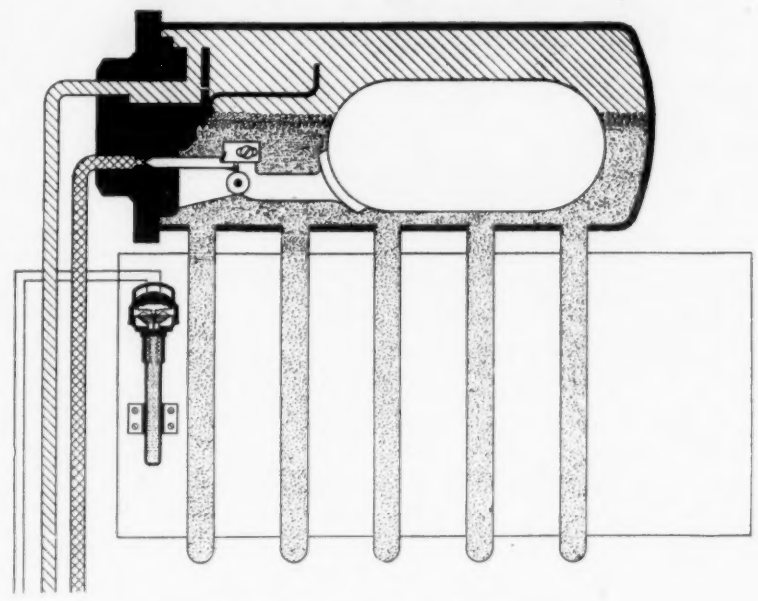
Valve designers have generally incorporated means, such as soft rubber caps, to protect the operating bellows from gathering moisture from without the device, and further to permit the bellows to breathe or expand and contract freely without affecting the original setting of the valve. The matter of materials for the valve and seat, the size of orifice through the seat, etc., are matters which have been carefully studied and there is some diversity of opinion as to best practices.

Low Side Floats

4. Low side float valves are used in those units where the level of the re-

(Concluded on Page 13, Column 1)

Low Side Float System



Typical low side float system (Kelvinator).

EXPANSION SYSTEMS EXPLAINED BY RILEY

(*Concluded from Page 12, Column 5*)

frigerant in the evaporator is maintained at a practically constant level. The float ball and valve are usually located in a header from which extend tubes or ducts of various lengths (depending on the capacity required of the evaporator) to provide the heat transfer area.

The evaporators are ordinarily made of steel or copper and naturally the particular design depends a great deal on the results expected as a heat transfer medium. The headers usually vary from 3 to 5 in. in diameter and use either a ball or bucket type float as the actuating means to lift the valve from the seat, as the level of the refrigerant varies from evaporation and the withdrawal of the gas by the compressor.

The low side float and evaporator have been extensively used in domestic unit installations, as well as in ice cream cabinets and multiple installations, and except for the fact that the overall cost may be slightly higher than with other types of evaporators, the installations have been very successful.

Service Problems

Service requirements are due principally to leaky valves which cause back frosting, or as with other types of metering devices, dirt may accumulate in the needle and seat assembly, followed by the usual train of service troubles.

There are no adjustments with the low side float, and successful operation depends on an efficient temperature controlling device. An advantage of the low side float evaporator is that a surplus of refrigerant is usually carried in a liquid receiver and a slight leak anywhere in the system, too slight to give annoyance from a biological standpoint, will not cause a service operation for some considerable time.

A disadvantage, if it may be called such, is the fact that this type of evaporator usually requires a much greater quantity of refrigerant for a charge than with any other type of evaporator. From a refrigerating standpoint, the wetted surfaces of the evaporator shell and tubes assures a rapid heat transfer. Also the bulk of refrigerant gives, perhaps, a slight advantage in "hold over."

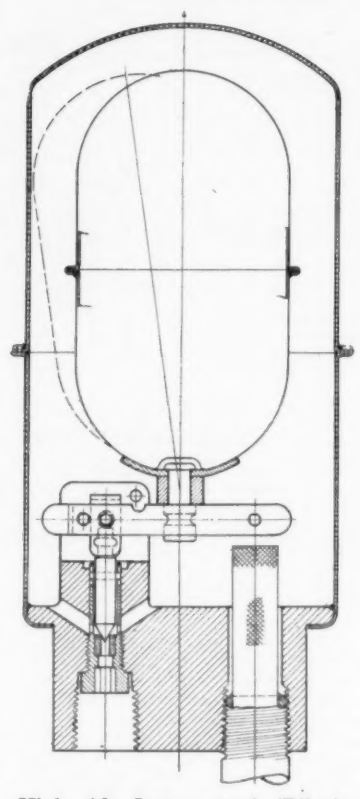
The matter of returning oil from the low side to the compressor is always a problem with the float type evaporators, depending to a great extent on the refrigerant used.

Oil Return

Various ingenious means have been devised for getting the oil back, but the best way yet found is to keep it from passing to the low side by means of oil traps which automatically return the oil to the crankcase of the compressor before it has a chance to "gum up" the low side.

Low side float evaporators have been used quite extensively in small commercial installations, but the amount of refrigerant required for commercial installations and the attendant hazards, coupled with the growing application of dry-gas installations with the finned defrosting type evaporators and thermostatic expansion valves, have combined to crowd the low side float evaporators into the background in this field.

High Side Float



High side float control (Riley).

High Side Floats

5. High side float valve installations appear to be the vogue at the present time. This may be due to several reasons. The overall cost of the high side float and evaporator is less than for the low side float unit. Less refrigerant is required but in the final analysis, the service troubles with the high side float seem to be much less than with the low side float evaporator, for reasons explained later.

The high side float itself is simply a device for dumping the condensate from the condenser into the evaporator. As this is done as rapidly as the liquid accumulates, it goes without saying that all of the refrigerant charge, except for the very small amount required to keep the float mechanism at the point of dumping, is in the evaporator, and by the same token too much or too little refrigerant in the system brings its own train of troubles.

Refrigerant Charge Critical

It should be understood at the outset that the charge of refrigerant in a high side float evaporator is critical—it should not vary roughly more than plus or minus one ounce after the correct charge has been determined or there will be either frosting back on the suction line or insufficient refrigeration produced.

A leaky valve, however, carries no particular train of troubles in its wake for the reason that a small leak, and it is usual to permit a leak as great as 120 bubbles per minute, merely passes a small amount of gas into the low side and except that this small leakage might show up on a recording chart installed in the suction line, there would be no effect in the amount of refrigeration produced. It is in this point just mentioned that the great difference lies between the high and low side float operation.

Where the high pressure unit is installed in the base of a household system it is the usual custom to place a pressure reducing valve at the end of the line leading from the high side float located on the machine base and just before it enters the evaporator. This valve serves two purposes: first, if this valve is set to open at about 25 to 30 lbs. pressure of liquid against the needle, the liquid line will not frost up, although it should be insulated to prevent even a small heat leakage; and second, the reduction in pressure will reduce very materially the erosion due to the passage of liquid through the orifice of both float and pressure reducing valve.

There are two general types of high side floats in common use. In sealed unit installations where the float outlet leads directly into the evaporator it has been customary to use a very small float shell, hardly more than large enough to contain the float ball itself.

The other type combines the float mechanism in a shell sufficiently large to contain the entire charge of refrigerant. This type is perhaps the preferred mechanism for any but the sealed unit—where all service operations usually call for a new or complete unit change.

High side floats of either type may be subject to the same difficulties with dirt, scale, acid, or other foreign matter, and in addition to these difficulties, there is the ever-present problem of oil return from the evaporator to the crank case of the compressor. These problems are usually met in the same way as with the low side evaporator. The best way to prevent oil from reaching the evaporator is by using an efficient automatic oil trap.

The choice between low and high side float devices should be dictated by first cost, servicing operations, and appearance of the evaporator in the cabinet (a smaller header is used with the high side float and there are no valves to mar its appearance).

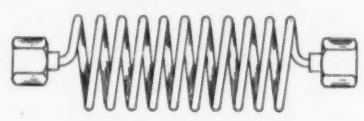
Low side float evaporators may be used in multiple installations, but up to the present time high side float evaporators have been used only in single unit installations. The high side float may be used with a coil type evaporator by adding an accumulator to the suction end of the coil to take care of the surge of refrigerant when starting the compressor, and to prevent the rush of unsaturated gas and raw refrigerant back to the compressor.

Capillary Tube

6. The capillary tube has been used for several years with varying degrees of success as a metering device. It is used as the sole means of separating the high from the low pressure side in a refrigerating system. The device itself is merely a tube of varying length, depending mostly on compressor capacity, and with a very small bore which will vary from .030 to .045 in.

The kind of refrigerant to be used will of course influence either the length of the tube or the size of the orifice. The tube and orifice should be

Capillary Tube



Capillary tube (Rice type).

of such length and size as to keep the tube full of liquid when the refrigerating unit is operating under normal conditions.

There is no adjustment possible with the capillary tube and, of course, all of the refrigerant is on the low pressure side of the system.

Capillary tubes have been used in lengths varying from a few inches to 20 ft. and the tube necessarily must be kept absolutely free from grease, dirt, or foreign matter of any kind or it will plug up very quickly.

It would seem that if all operating conditions were known in advance, such as cabinet temperature and heat leakage, climatic temperature, etc., that it would be possible to vary the length of the tube to attain satisfactory operation, however, it is merely a personal opinion that the use of a capillary tube for general refrigeration is perhaps a case of breeding trouble for the service man and the unit manufacturer.

Adjustable Capillary Tube

7. There is another type of capillary metering device which is not a tube but a threaded affair where the orifice is formed by machining off the outer edge of the male threads. By turning the male portion either in or out, the length of the orifice is varied to meet existing requirements.

Liquid Pump

8. For some types of installation, the liquid pump, which is merely an orthodox pump used for pumping the condensate into the evaporator from the condenser would seem to have certain advantages over float or spring and bellows actuated metering devices.

There is little chance for the few operating parts to get out of order, and jarring, shaking, or vibration of the unit as a whole would have no effect on the operation of the device. In this type of installation all of the refrigerant would be on the low pressure side just as in the case of the high side float or the capillary tube.

The above eight types of metering devices about covers the present devices which are commonly used in today's refrigerating installations, and it is the job of the designing engineer to select the one which in his judgment will best suit the purpose at hand.

NEW DETROIT VALVES ARE NON-ADJUSTABLE

(Concluded from Page 1, Column 2)

sion valve during assembly and "run-in" by the refrigerator manufacturer.

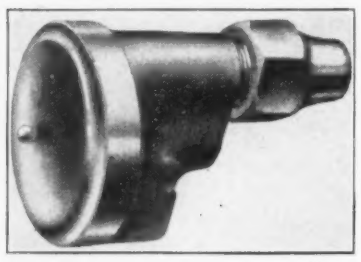
As shown in Fig. 1, the valve contains a diaphragm "D" which responds to the evaporating pressure, and operates the needle by means of a small push rod.

A cover "B" sealed over the diaphragm forms an inclosed space into which is charged an inert gas at a pressure dependent on the desired operating pressure of the valve.

After charging, the valve is subjected to a seasoning period at 250° F. The high temperature expands the inert gas and causes a high pressure in the diaphragm chamber which discloses any leaks. Furthermore, the high temperature seasoning operation subjects each valve to a permanence of adjustment test, for the valve must be unchanged by the high temperature.

The 675 valve can be dehydrated at any temperature up to 250° F. without causing change in adjustment, Mr. Wile declares. Both needle spring and diaphragm are of special heat treated stainless steel, stressed well below the elastic limit and protected against injury from abnormally high pressures.

New Automatic Valve



Smaller and more compact, Detroit Lubricator's new automatic expansion valve is shipped with a permanent adjustment.

Section of Automatic

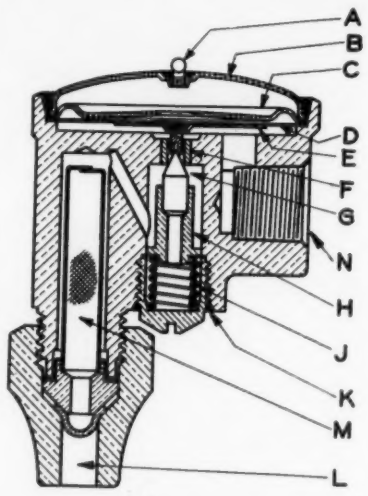


Fig. 1—New Detroit non-adjustable automatic expansion valve: A Filler tube seal, B Diaphragm cover, C Diaphragm retainer plate, D Diaphragm, E Diaphragm push plate and push rod, F Stainless steel seat, G Stainless steel needle, H Needle guide, J Needle spring, K Soldered joint around plug, L Inlet connection, M Strainer, N Outlet connection.

The required pressure setting for the automatic valves must be measured at the outlet of the valve, and not at the compressor as is usually done, Mr. Wile states. This is to eliminate the pressure drop through the suction line and evaporator—which varies for different systems.

This pressure is usually measured by inserting a T on an experimental hook-up, between an adjustable automatic valve and the evaporator; a gauge connected to the T will indicate the desired pressure.

Standard outlet connections on the new automatic valve are ⅛- or ¼-in. female pipe threads, or ¼-, ⅜-, or ½-in. S.A.E. connections for flared tubing. The standard inlet connection is ¼-in. flared tube containing a strainer as shown in Fig. 1.

NEW THERMOSTATIC VALVE

Model 674, the new thermostatic expansion valve with the permanent adjustment, is designed to bring the increased efficiency, faster ice freezing, and other advantages over the automatic valve to deluxe household refrigerators, ice cream cabinets, and other refrigerators built on a production basis, officials of Detroit Lubricator state.

The new 674 valve is not intended to replace the present adjustable 673 thermostatic valve, they say, the latter type of valve being required for the wide variety of commercial refrigeration installations.

Instead of maintaining a constant pressure in the low side as an automatic expansion valve does, the thermostatic valve always keeps the evaporator completely refrigerated. Pressure then varies with the temperature of the evaporator just as with a flooded type evaporator. In fact, the new 674 valve can be used to control a flooded cooling unit, its designers aver.

With systems using Cold Control thermostats, the new thermostatic valve increases the capacity and efficiency over an automatic valve because the low side pressure is always maintained as high as possible for any Cold Control setting, Mr. Wile points out. This is because the valve always keeps the evaporator completely refrigerated.

The new 674 valve combines the principle of the present 673 adjustable valve into a non-adjustable single purpose valve for household refrigerators and other factory assembled units built in volume. By eliminating the external adjusting screw the valve has been simplified without losing any operating features necessary for this type of service.

There is only one spring in the new valve. It is of special heat treated stainless steel which will not change even under high temperatures encountered during dehydration.

The valve is adjusted during manufacture and cannot be re-adjusted. It can be applied to domestic evaporators or ice cream cabinets without further adjustment.

As shown in the cross-section view in Fig. 2, the thermostatic expansion valve has a bellows "B" which responds to the pressure in the power element, and operates through the push rod "E" against the expansion valve bellows "G."

Bellows "G" responds to the low side pressure and tends to close the valve on increasing pressure. The pressure in the power element acting on bellows "B" depends on the *temperature* of the bulb "P" which is charged with a thermostatic gas. Bellows "B" therefore tends to open the valve on increased temperature at bulb "P."

The reaction of the two bellows causes the valve to operate on the *difference* between the temperature (or pressure) of the refrigerant and the temperature of the bulb. When the bulb is clamped to the suction line the valve controls the superheat at that point.

The two bellows are so proportioned that a constant degree of superheat is maintained regardless of the operating pressure. Fig. X shows the uniform control obtained over a wide range of pressure.

During operation of a unit equipped with the thermostatic expansion valve, the back pressure varies during the operating cycle exactly as in a flooded type evaporator, according to Mr. Wile.

The valve does not control either temperature or pressure directly, it is a variable back pressure valve that simply keeps the evaporator completely refrigerated without permitting the refrigerant to enter the suction line. A pressurestat or thermostat is recommended to start and stop the compressor.

Power elements on the new 674 valves will all be gas-charged to limit the starting load on the compressor. Instead of charging the power element with a quantity of volatile liquid, it is charged with the vapor of the liquid at a definite pressure. This charging pressure determines the maximum operating pressure of the valve.

When starting up a system, the valve remains closed until the low side pressure is reduced to a point where the motor will not be overloaded, Detroit Lubricator engineers explain, because during this period the gas charge has insufficient force to open the valve against the high pressure existing in the low side.

The valve remains closed, and the compressor quickly reduces the low side pressure down to the pressure of the gas charge in the valve. The valve then begins to open, and maintains a constant low side pressure in the same manner as an automatic expansion valve.

After a short time the evaporator becomes completely refrigerated. When the thermostatic bulb (attached to the suction line) is cooled, the gas charge condenses into a liquid and actuates the valve on vapor pressure instead of on gas pressure, operating it thereafter as a standard liquid-charged thermostatic expansion valve.

Fig. 3 shows the comparative pull-down characteristics of the automatic, thermostatic, and gas-charged thermostatic expansion valves. The dotted line shows the pull-down characteristic of an automatic expansion valve. Note that the valve remains closed until the pressure is reduced to the operating pressure. The starting load is reduced quickly, and the valves operates at constant pressure.

The light line of Fig. 3 shows the pull-down characteristic of the thermostatic expansion valve. The valve tends to keep the evaporator completely refrigerated from the start of the pull-down. The refrigeration rate is higher than with the automatic valve, but the motor load is also greater during the pull-down.

The heavy line represents the pull-down characteristic obtained with the new gas-charged, non-adjustable No. 674 valve. The valve remains closed at first, allowing the motor load to reduce quickly to the predetermined maximum operating pressure; below this pressure operation is just the same as with a liquid-charged thermostatic valve.

Proper operation of the valve requires that the thermostatic power element "A" (see Fig. 2) always be warmer than the bulb "P." The valve should be installed on top or in back of the evaporator, Mr. Wile points out, and not underneath. The power element should not be insulated.

"The bulb should be clamped to the suction line at a point as near as possible to the evaporator so that it will be kept cool during the shut-down period," Mr. Wile states. "If the bulb warms up faster than the evaporator it may open during the off cycle and admit too much refrigerant. With certain types of evaporators it may be desirable to clamp the bulb directly to the evaporator near the suction end, instead of on the suction line."

Two standard lengths of capillary tubing are available with the new valve; one is 12 in. long, the other 60 in. long. Standard inlet and outlet connections are the same as those mentioned above for the automatic valve.

Pressures for which the new thermostatic valve is built are 5, 10, 15, 25, and 35 lbs. for sulphur dioxide; 15, 25, 35, and 45 lbs. for methyl chloride; and 25, 35, 45, 55, and 65 lbs. for Freon.

Section of Non-Adjustable Thermostatic Valve

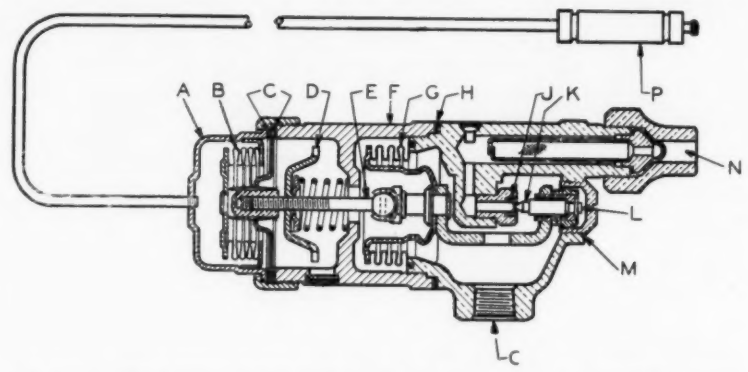
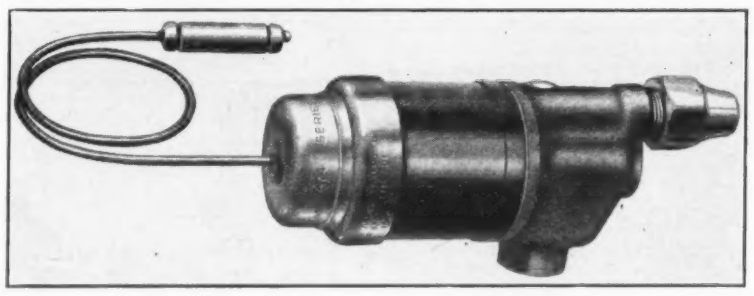


Fig. 2—Showing parts of the new Genuine Detroit non-adjustable thermostatic expansion valve: A Thermostatic power element, B Thermostatic bellows, C Moisture tight joint, D Factory adjustment, E Push rod, F Bakelite extension, G Pressure bellows, H Moisture tight joint, J Stainless steel seat, K Stainless steel needle, L Needle swivel, M Plug sealed metal to metal and solder, N Inlet connection, O Outlet connection, P Thermostatic bulb.

Exterior of New Thermostatic Valve



Detroit Lubricator's new non-adjustable thermostatic expansion valve, designed for deluxe models of household refrigerators, ice cream cabinets, etc. It does not replace the present adjustable valve for the majority of commercial installations.

Pull-Down Characteristics

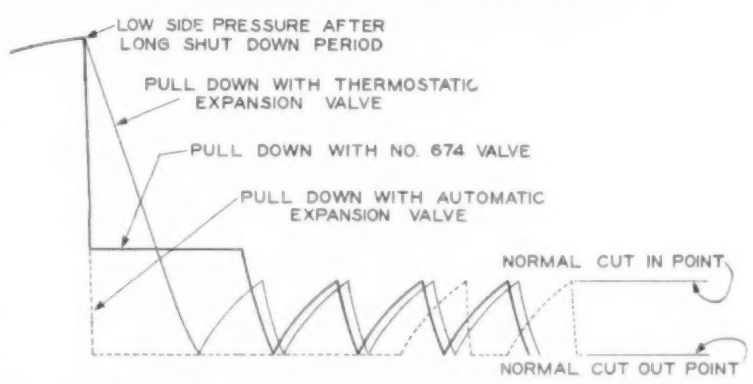


Fig. 3—Comparative pull-down characteristics of automatic, liquid-charged thermostatic, and gas-charged thermostatic expansion valves.

STAMPINGS USEFUL FOR FLAPPER VALVES

By Glendon H. Roberts
President, Detroit Stamping Co.

THE high efficiency of electric refrigerators is due largely to an intelligent, aggressive kind of engineering that insists on keeping the quality up and the cost down—both at the same time. Helpful to this paradox is the use of stampings, which have constantly improved the product and lowered the retail price.

As an example of this engineering, take the flapper valves of the compressor of an electric refrigerator. One of these valves is located at the head of each cylinder, to close the cylinder at each down stroke. Up to four valves are integral with the piston, and open on the suction stroke downwards.

As the piston moves from four to eight strokes per second, the valves open and reseat from 250 to 500 times a minute. In view of the uninterrupted service of compressors, often running into several years, the demands on these thin, delicate valves can easily be realized.

Valve manufacturers have solved the problem by employing a superior Swedish flapper steel, which can be stamped into flapper valves and restraining springs, without requiring the tedious, expensive lapping operations necessary with ordinary steel. The Detroit Stamping Co. imports its own material direct from Sweden.

Flapper valves are but one of scores of stampings used to make electric refrigerators. Stamped parts range from discs, smaller and thinner than a dime, to the heavy cylinder-head plates of 5/16-in. steel for triple-cylinder compressors.

Carrier, Copeland, Deissler, General Refrigeration, Gibson, Grinnell, Kelvinator, Leonard, Liquid Cooler, Norge, Servel, Universal Cooler, and York are some of the makes in which Detroit Stamping products are used, only a portion of which space permits mentioning.

Many of the various parts are made in various sizes. With the exception of commercial units, practically all of the pieces are stamped from permanent dies.

Production of commercial refrigerators, although an important industry, involves a lower volume of individual stampings. This, the "short-run" process is used extensively for commercial refrigerator parts.

Obviously, stampings engineers must be familiar with the requirements of electric refrigeration engineers and must cooperate with them in order to produce stampings that solve problems without creating new ones.

SERVICE NOTES

By K. M. Newcum

PROBABLY many service men have condemned the thermostatic expansion valve in favor of the old flooded type jobs, using a float type control. Their reason for doing this, the writer finds, is that, they are having trouble getting the thermostatic valve to stay in adjustment, and they never had that trouble with the float valves.

If the valve has been correctly installed and located and the thermostatic bulb has been securely clamped to the return line at the proper place at the time of installation, there are but few service complaints possible.

When the thermostatic bulb is clamped to the return line, care should be taken to see that there is actual contact between the bulb and the tube. The clamp should always be installed in such a manner that water resulting from defrosting can immediately run off the clamp.

In other words the open part of the clamp should be inverted, or upside down, and never so that the opening can collect and retain water, for if the water collects between the clamp and the bulb, it will freeze and cause the clamp to burst, thus releasing the bulb from the tube.

When Bulb Loses Charge

There has been considerable trouble in the field with thermostatic bulbs loosing their charge of thermostatic liquid. This in most all cases is due to the solder in the tip of the thermostatic bulb becoming crystallized, or decomposed, so that the pressure of the thermostatic liquid ruptures the bulb.

If, before the bulb is clamped to the suction line, it is completely covered with a coating of lacquer (especially on the soldered ends), the lacquer will preserve the solder, and complaints from this source will be reduced to a minimum.

A good thermostatic valve should operate for several years without any trouble or need of adjustment, but there are many valves being replaced, in the field, on jobs that are comparatively new. Although there will be defects in any product, the majority of these valves are not defective, but are actually being used in a system that is operating with an insufficient amount of oil.

For instance, if two or three valves are replaced on a job that has only been in operation for three years or even less, it is quite evident that all of these valves are not defective, but that there is something else wrong.

Looking for the Trouble

In these cases it is recommended that you check the operating head pressure, as you may find it excessive. If it is, purge the system of air until the pressure is normal. High head pressure will cause hot, uncondensed gas to be forced up through the expansion valve, which will cause the needle and seat to become eroded and leak.

High head pressure causes decomposition of the oil, which in time reduces the amount in the system. Thus purging the system of foul gases and air is important.

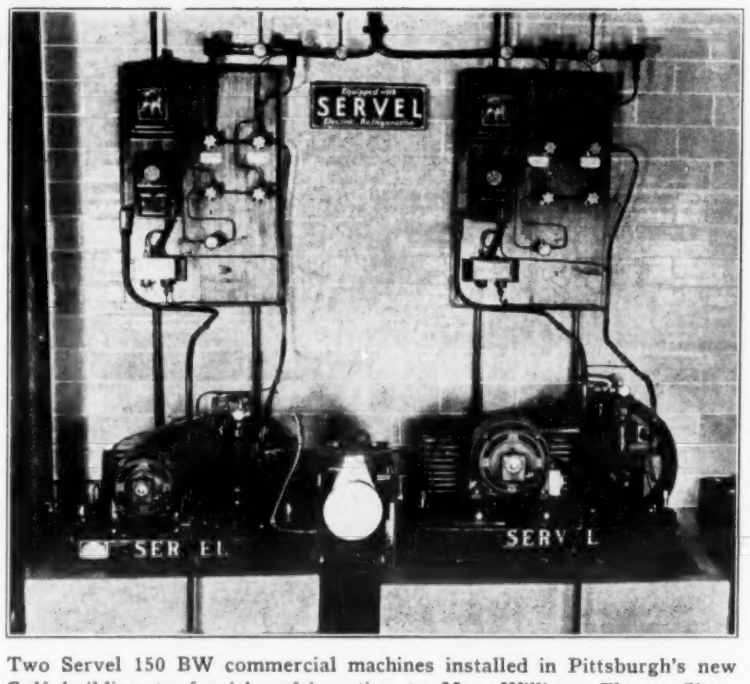
If the operating pressure is normal, pump the refrigerant out of the coils into the receiver, down to zero pounds on the compound gauge. Take the suction line loose from the compressor, and examine the inside of it for traces of oil.

If the inside of the line is dry, it is evident that, your job has insufficient oil, and that no oil is actually being circulated with the liquid refrigerant.

Like any other piece of mechanism, the expansion valve requires lubrication, and if the refrigerant is dry, the valve will start leaking in a very short time, as the needle and seat become worn and will not hold the pressure exerted against them.

It was found that when the above existed, adding sufficient oil to the compressor so that we were actually circulating oil through the expansion valve, reduced expansion valve troubles to a minimum.

Keeping Flowers Fresh



Two Servel 150 BW commercial machines installed in Pittsburgh's new Gulf building to furnish refrigeration to Mrs. Williams Flower Shop. Note the neat panel of Kerotest packless valves.

MULLINS CAN MANUFACTURE 3,000 EVAPORATORS DAILY

SALEM, Ohio—Production equipment in the Mullins Mfg. Co. is now capable of manufacturing, handling, and enameling approximately 3,000 finished porcelain evaporators per day, according to W. B. Clark, sales manager of Mullins' refrigeration division.

Much of the equipment installed to make evaporators was specially designed for the purpose, Mr. Clark states. Three presses used to form corrugations in side walls of the evaporators rank with the heaviest machinery in the Mullins plant.

One of these, for instance, is 35 ft. in height overall, 23 ft. of which is above the floor level and the remaining 12 ft. forming a foundation beneath the level of the floor. The entire frame or housing is of cast steel.

FEDDERS HAS NEW BEER KEG COOLER

BUFFALO—Fedders Mfg. Co. of this city has introduced a new "force-draft" unit cooler for pre-cooling keg beer storage boxes, and large meat or produce coolers.

The forced convection unit consists of a series of continuous finned copper tubing, four-blade fan and motor, and Fedders thermostatic expansion valve.

The design of the Fedders unit cooler introduces some new features. The cooling element is inclined at an angle for the purpose of directing the cold air stream upward so that it reaches all parts of the room under forced draft. Louvres are eliminated by this arrangement.

The inclined element also makes it possible to drain the condensate from the rear of the fins where it drops into the drip pan in the base of the cooler shell and is drained.

Testing Laboratories Draft Code

NEW YORK CITY—Representatives from various types of commercial testing laboratories in all parts of the country met Oct. 13 in the Engineering building here to prepare a code of fair competition.

Following are the organizations which arranged the meeting:

Electrical Testing Laboratories, New York City; Froehling and Robertson, Inc., Richmond, Va.; Ledoux & Co., New York City; Arthur D. Little, Inc., Cambridge, Mass.; Lucius Pitkin, Inc., New York City; Pittsburgh Testing Laboratory, Pittsburgh; Skinner & Sherman, Inc., Boston; United States Testing Co., Inc., Hoboken, N. J.; and American Institute of Fertilizer Chemists.

2 MAJESTIC DISTRIBUTORS NAMED BY DITZELL

CHICAGO—City Electric Co. of Syracuse, N. Y., has been appointed distributor of Majestic refrigerators and radios in central New York, and Cummings & Emerson of Peoria, Ill., is new Majestic distributor for central Illinois, according to John F. Ditzell, assistant vice president and general sales manager of Grigsby-Grunow Co. here.

Specifications of Curtis Commercial Machines

Curtis Mfg. Co., St. Louis, Mo.

Model No.	SAR 16-B	SAR 25-C	MAR 25-J	MAH 25-E	MAL 25-J	MAR 33-K	MAL 33-N	MAR 33-L	MAH 33-L	MWR 33-L	MAR 50-N	MWR 50-N	MAR 75-O	MWR 75-O	MAR 100-P	MWR 100-P	MAR 150-Q	MWR 150-Q	MAR 200-Q	MAG 100-N	MAG 300-Q
Overall Dimensions (in.)																					
Width	15⅝	16⅜	15¼	15¼	14⅞	15¾	14⅞	16	18	19½	18	19½	18½	20	20	22½	23½	24½	24	23¾	32¼
Length	23⅛	23½	23½	23½	17¾	24	18¼	29	30½	28¼	30½	28¼	29½	28¼	36½	34	35½	38¼	36½	29½	32½
Height	11¼	12	17½	17½	22¾	17⅜	22¾	20¾	24	24	24	23¾	25½	24	26½	26¼	27	26¼	28	19½	23¼
Refrigeration Capacity																					
In lbs. I.M.E. per 24 hours	119	194	217	187	247	277	434	327	302	376	464	562	720	850	1025	1150	1415	1510	1600	464	1162
Compressor Specifications																					
Compressor speed (r.p.m.)	470	490	350	400	400	350	350	350	325	375	375	425	425	500	400	450	400	425	450	375	350
No. of cylinders	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bore (in.)	1½	1⅞	1⅞	1⅝	1⅞	2⅛	1⅞	1⅝	1⅝	1⅝	1⅞	1⅞	2⅛	2⅛	2⅛	2⅛	2½	2½	2½	1⅞	2½
Stroke (in.)	1½	1½	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	2½	2½	2½	2½	2½	1⅝	2½
Motor size (hp.)	⅛	¼	¼	¼	¼	⅓	⅓	⅓	⅓	⅓	½	½	¾	¾	1	1	1½	1½	2	1	3
Quantity of refrigerant in system (lbs.)	2	3	4	4	3	5	3	5	8	6	6	6	6	6	8	8	8	8	10	5	5
Pump down capacity of receiver (lbs.)	6.5	6.5	8.25	8.25	6.5	8.25	6.5	8.25	21	21	21	21	21	21	29	29	29	29	29	8.25	8.25
Quantity of lubricant in system (lbs.)	⅝	⅞	1¼	1¼	1¼	1¼	2¾	2¾	2¾	2¾	2¾	2¾	2¾	2¾	4¼	4¼	4¼	4¼	4¼	2¾	4¼

Compressor
Type of system.....Conventional
Type of compressor.....Reciprocating
Compressor drive.....Belt
Type of shaft seal.....Bellows
Cylinder head cooled by.....Models MWR-100-P & MWR-150-Q—water; others—air
Type of lubrication system.....Controlled splash

Motor
Make of motor.....Wagner or equal

Refrigerant
Kind used.....S models—sulphur; M models—methyl

Condenser & Liquid Receiver
Method of cooling...MWR models—water; others—air
Type of condenser.....MWR models—double tube; others—finned tube

Valves
Type of discharge valve.....Wafer
Type of suction valve.....Wafer
Type of water valve.....Penn

Materials Used
Cylinder block.....Semi-steel
Pistons.....Semi-steel
Condenser tubes.....Copper

Control
Make of control.....Penn
Type of control.....Pressure
High pressure cut-out...Models MAH-33-L & larger—yes; others—no
Condensing water flow controlled by.....Head pressure
Type of overload cut-out.....Thermal

M.I.T. TO START LECTURE COURSE IN REFRIGERATION

(*Concluded from Page 1, Column 5*)

rants, the authorities plan to give it later in Worcester, New Bedford, and Lowell, the announcement states.

The department of education has circularized dealers in this vicinity, advising them that the course starts Nov. 3 at 7:30 p. m. in room 330, building 5 of M.I.T., and that the enrollment charge is $5 per student.

Electric and gas household and commercial refrigerators are to be covered from the service and installation angles. Instruction will include operation, characteristics, installation details, adjustments, and service, with large colored charts and lantern slides to show refrigeration cycles and sectional views of different units.

Subjects to be discussed embrace refrigerants (including Freon and Carrene), compression and absorption systems, refrigerant controls, electrical controls, adjustments, charging and discharging refrigerant, charging oil, changing cooling coils, condensers, or compressors, purging, etc.

AUTOMOBILE ATTACHMENT GENERATES 110 VOLTS A.C.

CHICAGO—A device for supplying 110-volt, 60-cycle alternating current in motor vehicles is being introduced by the Autonator Laboratories, Inc., of this city. The Autonator operates from the car's fan belt, and supplies current only when the motor is running.

This device, says its manufacturer, takes no drain from the auto battery, and has no brushes, collector rings, commutator or wire-bound armature. Voltage is automatically regulated at all speeds.

Two sets of coils are used in the Autonator, the field coil being excited by direct current from the car generator or battery. The device is available in six sizes—50, 100, 150, 250, 350, and 450 watts. List prices range from $32.50 to $145.

CATALOGS

Central Valves and Fittings

Catalog C of Central Brass Mfg. Co., Cleveland, contains complete information on Central faucets, valves, and fittings for beer bars, restaurant equipment, soda fountains, water coolers, and drinking fountains. Each product is pictured with specifications listed below.

Kason Refrigerator Latches

To be included in a loose-leaf catalog is a four-page pamphlet announcing Kason's new K-54B forged brass refrigerator latch with new micrometer strike, issued by Kason Hardware Corp. of Brooklyn. A letter describing the latch takes up the first page, and a diagrammatic picture of the latch, with specifications and features, is shown on the inside spread. Also illustrated is an automatic exit handle for walk-in refrigerators.

Cooling Tower Products

Six catalog insertion sheets from Cooling Tower Co., New York City, show actual installations of forced and induced draft cooling towers. In describing type T atmosphere cooling towers for use in cooling water for refrigerant condensers, diesel engines, etc., one sheet gives specifications, cooling curves, and a price chart. Second bulletin gives a detailed account of the theory of mechanical draft cooling towers, their applications, and a discussion of various types of towers. Installations shown in the other bulletins include Rockefeller Center, American Tobacco Co., Atlantic Refining Co., and Woonsocket Rayon Co.

Lion Beer Dispensers

Lion Mfg. Corp., Chicago, is sending to prospective distributors and dealers, summed up in three mailing pieces, full information on its Tap-A-Bar and Little Tavern portable beer dispensers. First bulletindescribes the Lion Kegkooler combination barrel-cabinet and bar equipped with the Tap-A-Bar dispenser (in the form of a keg) and the Little Tavern dispenser (in the form of a miniature tavern). This latter piece of equipment is fully treated and illustrated in a second mailing piece. "Now Serve Draft Beer Anywhere" is the title of the third sheet, giving features, pictures, and a cutaway diagram of the Tap-A-Bar.

Electric Solenoid Valves

Complete operating, installing, and specifications data on packness construction solenoid valves is given in five sheets available to the industry from Electric Valve Mfg. Co., New York City. Valves described are types N (recommended where tight shut-off is required), A (operating on high pressure), SB (operating on moderate pressure), NA and AA (for use in ammonia systems).

Cash-Acme Valves

A. W. Cash Valve Mfg. Corp., Decatur, Ill., has issued its new catalog D on Cash-Acme pressure reducing and regulating valves. Devoting a full page to each valve described, the catalog gives specifications, cutaway views and diagrammatic pictures, operating and ordering information.

G & O Tubing

Designed for use with unit heaters and all types of refrigeration condensers and evaporators, G & O individual fin tubing is described in a sheet recently issued by G & O Mfg. Co. in New Haven, Conn. Tube data, pictures, and a short description make up the page.

Penn Water Regulators

Type XA Model XAS Penn water regulator, for use in controlling the flow of cooling water over condenser coils and through compressor jackets in ammonia refrigeration systems, is treated in a leaflet offered to the industry by Penn Electric Switch Co. of Des Moines, Iowa. Front page of the circular shows the regulator with cover removed, and gives specifications and prices. The same regulator combined with a high-pressure safety cut-out is described on the reverse side.

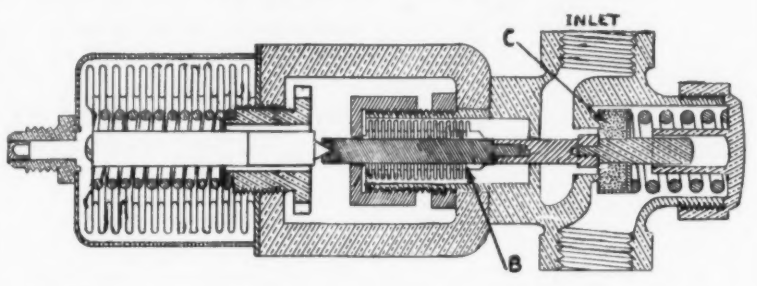
Nash Pumping Equipment

Gathered together for the first time in one piece of literature, complete information on Nash pumps has been assembled in a new bulletin available from Nash Engineering Co., South Norwalk, Conn. New developments described include the staged Nash compressors and vacuum pumps for higher pressures and vacuum; other sections treat the Jennings line of vacuum heating pumps. Tables giving capacity, ratings, and performance information are an aid to selection of proper equipment.

Amthor Instruments

Of interest to air-conditioning manufacturers and installers is circular No. 108 of Amthor Testing Instrument Co., Brooklyn, which describes the Amthor line of direct-reading precision hygrometers, recorders, and other instruments used in determining air conditions.

Cooling Water Control



Longitudinal section of a Penn XLI water valve showing bellows packing.

Bellows Packing Features Penn Water Valve

DES MOINES, Iowa—Chief constructional feature of the Penn Type XLI water regulator valves for use with water-cooled refrigeration machines is the type of bellows packing used, according to Penn engineers. In addition to relieving friction, the bellows packing balances the water pressure against the valve disc, causing it to operate with a minimum of power, Penn engineers declare. This results in uniform operation regardless of city water pressures.

Pressure against the bellows "B" balances the pressure against the valve disc "C" when the valve is in the closed position. As the head pressure of the compressor increases, the valve starts to open, this balanced condition is gradually upset, giving a modulating action which allows the water flow to increase as the head pressure increases. This provides a cooling effect in accordance with the load on the compressor, without unnecessary waste of water.

One of the difficulties with the old type of stuffing box has been corrosion causing increased friction and sticking. There is no water flow through the bellows space in the Penn Type XLI, water being prevented from circulating by the space being packed with grease. This means that a fresh supply of water with its corrosive chemicals is prevented from reaching the bellows.

SUBJECTS SELECTED FOR A.S.R.E. MEETING

(*Concluded from Page 1, Column 2*)

In Printing," "Application of Vacuum Systems," and "Expanded Rubber Insulation."

Wednesday afternoon — Thermal Problems. "The Condensing Water Problem," "Conditioned Air for Food Storage," "Thermodynamics of SO_2—Oil Systems," and "Standards of Measurement in Refrigeration."

Thursday morning — Commercial and Domestic Session. "Commercial Room Cooling Units," "Field for Commercial Comfort Cooling," "Food Load Tests in Refrigerators," and "Mercury Compressor Design."

Thursday afternoon—Joint session with the A.S.M.E. on "Air Conditioning Problems."

Friday morning—Air Conditioning. "Building Construction for Air Conditioning," "Industrial Air Cooling from the Operator's Viewpoint," and "Passenger Car Cooling."

NOISE ELIMINATION TO BE DISCUSSED BY ENGINEERS

(*Concluded from Page 1, Column 1*)

material; Paul W. Hillebrand, research engineer of the same company; and J. W. Beckman, writer of Detroit.

There will be demonstrations of various materials and methods for eliminating noise, with special reference to noise in enclosed structures such as automobile bodies and refrigerator cabinets. About 85 per cent of all body engineers in the automobile industry belong to the Andrew F. Johnson Alumni Society, the announcement states.

MUELLER BRASS DESIGNS HEAVY OPERATING VALVES

PORT HURON, Mich. — Mueller Brass Co. is introducing a new line of forged brass fittings in ¾-in., 1-in., and 1¼-in. o.d. sizes, and three new double-packed, back-seating operating valves for heavy duty in commercial refrigeration and air-conditioning installations, J. R. Wightman announces.

The new valves have heavy forged brass bodies, and either a forged brass hand-wheel indexed "open" or "close" or a seal cap with an integral operating wrench. Openings through the valve are of the full-flow type.

Kelvinator-Temprite In '3.2 Corner, Inc.'

NEW YORK CITY—"3.2 Corner, Inc.," at 51st St. and Broadway here, well-known beer dispensing establishment, has been equipped with Kelvinator-Temprite beer-cooling equipment.

Equipment installed consists of one 40B2 Temprite beer cooler, one 30B2 Temprite beer cooler, two No. 10 Temprite water coolers—all hooked up to a Kelvinator ¾-hp. condensing unit.

WESTINGHOUSE BUILDS 'HANDY DRIER'

EAST PITTSBURGH, Pa.—The "handy drier," an electrical appliance for drying silk hose, gloves, and lingerie has been announced by the Westinghouse Electric & Mfg. Co.

11 Manufacturers in Refrigeration Division of Nema Sell 60,840 Household Units in September

Reported by Refrigeration Division of National Electrical Manufacturers Association. Member companies: Crosley, Frigidaire, General Electric, Gibson, Grigsby-Grunow, Kelvinator, Norge, Servel, Trupar, Universal Cooler, and Westinghouse.

	World Sales		U. S. A. INVENTORIES: Factory, Branch, and Warehouse		Dealers and Distributors	
HOUSEHOLD	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
Lacquer (Ext.) Cabinets with Systems						
1. Under 4.00 cubic feet	1,110	57,265	696	39,333	1,583	82,732
2. 4 to 4.99 cubic feet	20,476	1,270,753	30,160	1,961,584	21,890	1,418,419
3. 5 to 5.99 cubic feet	4,417	323,499	9,385	656,533	9,108	660,803
4. 6 to 6.99 cubic feet	7,894	630,422	7,544	646,324	12,334	1,062,075
5. 7 to 7.99 cubic feet	4,887	514,643	15,570	1,605,755	8,537	864,550
6. 8 to 9.99 cubic feet	494	61,621	1,562	202,176	1,869	221,625
7. 10 to 12.99 cubic feet	103	20,016	1,077	199,478	399	76,916
8. 13 to 16.99 cubic feet	24	5,143	272	54,282	68	14,829
9. 17 to 24.00 cubic feet	3	789	116	30,065	49	13,500
10. Total Lacquer	**39,408**	**2,884,151**	**66,382**	**5,395,530**	**55,837**	**4,415,449**
Porcelain (Ext.) Cabinets with Systems						
11. Under 4.00 cubic feet	60	3,348	31	1,853	134	7,973
12. 4 to 4.99 cubic feet	2,259	174,158	8,713	752,788	3,125	252,842
13. 5 to 5.99 cubic feet	1,058	97,601	854	77,357	1,974	189,862
14. 6 to 6.99 cubic feet	5,022	476,560	4,773	459,619	5,172	529,698
15. 7 to 7.99 cubic feet	6,355	757,244	9,911	1,162,169	7,551	900,815
16. 8 to 9.99 cubic feet	2,363	308,687	1,759	233,847	2,669	368,141
17. 10 to 12.99 cubic feet	886	141,828	978	170,147	954	166,699
18. 13 to 16.99 cubic feet	228	44,648	1,022	194,202	378	76,942
19. 17 to 24.00 cubic feet	45	14,322	516	140,469	178	54,104
20. Total Porcelain	**18,276**	**2,018,396**	**28,557**	**3,192,451**	**22,135**	**2,547,076**
21. Total Lines 10 and 20	**57,684**	**4,902,547**	**94,939**	**8,587,981**	**77,972**	**6,962,525**
22. Separate Systems	2,188	96,555	5,691	278,914	1,125	35,775
23. Separate Household Low Sides	968	15,153	6,735	109,572	671	13,029
24. Total Lines 21, 22, and 23	**60,840**	.....	**107,365**	.....	**79,768**	.....
25. High Sides Under ½ hp.	1,086	40,079	1,360	66,273	369	17,505
26. Cabinets—No Systems	124	12,920	18,657	902,154	122	12,466
27.	.....	.....	.....	.....	....	.....
28. Total Household	.....	**5,067,254**	.....	**9,944,894**	.....	**7,041,300**
COMMERCIAL						
31. Water Coolers with High Sides	772	77,863	8,586	715,696	2,984	301,255
32. Water Coolers with No High Sides	72	3,792	519	24,006	152	5,769
33. Ice Cream Cabinets with High Sides	75	9,276	2,301	312,371	86	10,460
34. Ice Cream Cabinets with No High Sides	83	8,480	3,453	428,067	186	20,903
35. Milk Coolers with No High Sides	.....	.....	7	1,296	36	6,667
36. Room Coolers with High Sides	.....	.....	2	1,045	1	553
37. Room Coolers with No High Sides	104	11,660	1,546	157,667	278	26,679
38. Extra High Sides, ½ hp. and Up	3,667	394,503	9,742	1,125,263	3,520	443,451
39. Total Lines 31, 33, 36, 38, and 42	**4,989**	.....	**23,665**	.....	**7,223**	.....
40. Extra Commercial Low Sides	4,325	139,027	17,261	572,081	4,595	162,766
41. Miscellaneous Cases and Cabinets	.....	44,809	.....	328,273	.....	85,015
42. Beverage Coolers ***	475	31,750	2,034	117,640	632	36,947
43. Total Commercial	.....	**721,160**	.....	**3,783,405**	.....	**1,100,465**
44. Totals—Household and Commercial	.....	**$5,788,414**	.....	***$13,856,299**	.....	****$8,141,765**

*The total of the figures by sizes does not agree with the total figures shown, namely $13,856,299, because of the failure to supply the detailed information by all companies.

The number of companies reporting inventories at factory, branch, and warehouse was 10. The percentage of total sales of these 10 companies was 97.5%.

**The number of companies reporting inventories of dealers and distributors was 9. The percentage of total sales of these 9 companies was 88.1%.

***Beverage Coolers with and without High Sides.

Exports of Electric Refrigerators For August, 1933

August, 1933, Shipments Reported by the Bureau of Foreign and Domestic Commerce, Washington, D. C.

	Electric Household Refrigerators		Electric Commercial Refrigerators Up to 1 Ton		Parts for Electric Refrigerators
	Number	Value	Number	Value	Value
Austria	4	$ 245	...	...	$ 1,609
Belgium	73	5,978	79	$ 6,706	6,653
Czechoslovakia	15	412	12	476	5,571
Denmark	13	633	9	561	2,075
Finland	4	188	2	183	281
France	520	23,940	145	14,654	17,629
Germany	101	5,541	2	117	2,532
Gibraltar	1	89	...	...	...
Greece	3	264	...	...	...
Italy	37	2,858	20	4,101	3,101
Malta, Gozo, and Cyprus	2	342	...	...	5
Netherlands	111	7,303	85	7,868	5,736
Norway	25	2,011	11	1,160	1,550
Poland and Danzig	...	...	2	350	56
Portugal	8	731	4	287	758
Spain	79	5,883	23	1,865	1,984
Sweden	162	11,367	43	3,580	8,037
Switzerland	21	1,992	3	348	6,008
United Kingdom	949	33,462	313	20,258	36,207
Yugoslavia	2	229	28	1,206	2,044
Canada	210	10,176	101	5,525	13,455
British Honduras	...	...	...	...	40
Costa Rica	7	507	...	...	12
Guatemala	1	66	4	465	45
Honduras	7	773	...	...	73
Nicaragua	2	231	...	...	70
Panama	68	7,314	11	2,203	1,930
Salvador	5	541	...	...	51
Mexico	239	18,979	7	1,952	8,734
Newfoundland and Labrador	7	735	...	...	3
Bermudas	60	5,713	3	732	127
Barbados	19	1,989	...	...	255
Jamaica	17	2,085	1	350	53
Trinidad and Tobago	7	421	...	...	3
Other British West Indies	23	1,691	...	...	75
Cuba	92	7,403	1	75	606
Dominican Republic	16	1,379	...	...	180
Netherland West Indies	27	2,266	5	841	67
Haiti, Republic of	1	102	...	...	1
Virgin Islands of U. S.	...	...	...	...	50
Argentina	354	22,200	69	8,351	11,574
Brazil	361	32,036	17	1,543	2,162
Chile	...	...	...	...	125
Colombia	63	6,579	1	204	31
Ecuador	1	59	...	...	...
British Guiana	...	...	...	...	21
Peru	3	380	...	...	...
Uruguay	...	...	...	...	369
Venezuela	40	4,046	...	...	49
British India	177	17,200	23	2,769	3,459
British Malaya	34	3,258	1	127	823
Ceylon	22	1,549	...	...	279
China	41	4,539	...	...	1,557
Netherland East Indies	236	27,093	19	6,290	1,106
French Indo-China	24	3,600	...	...	588
Hong Kong	15	1,325	2	253	230
Iraq	1	25	...	...	...
Japan	4	533	3	573	5,393
Palestine	13	1,107	7	1,159	587
Persia	...	...	1	122	...
Philippine Islands	61	7,568	34	4,836	1,252
Siam	4	1,111	...	...	5
Syria	10	860	1	140	36
Turkey	23	3,013	5	779	880
Australia	59	4,160	...	...	3,352
New Zealand	14	949	3	285	383
British East Africa	9	1,077	...	...	...
Union of South Africa	700	59,124	4	699	11,850
Other British South Africa	1	136	...	...	...
Gold Coast	6	424	...	...	300
Nigeria	20	1,484	...	...	...
Egypt	21	2,398	2	617	2,585
Algeria and Tunisia	4	252	12	2,067	305
Other French Africa	2	211	...	...	...
Morocco	17	1,184	19	2,763	1,699
Mozambique	14	1,211	...	...	...
Canary Islands	21	1,371	...	...	24
Other Spanish Africa	1	67	...	...	...
Total	**5,314**	**$377,968**	**1,122**	**$109,440**	**$178,690**
Shipments to Hawaii	530	53,662	25	3,662	6,495
Puerto Rico	71	8,463	7	1,575	2,036

Nema Sales by States For September

Tabulated below is the geographical distribution by states of September sales of household electric refrigerators made by the 11 companies belonging to the Refrigeration Division of the National Electrical Manufacturers Association.

STATES and Territories	Quantity of HOUSEHOLD Low Sides
Connecticut	940
Maine	261
Massachusetts	3,141
New Hampshire	147
Rhode Island	408
Vermont	113
New England Total	**5,010**
Delaware	101
Maryland & D. C.	2,613
New Jersey	3,170
New York (State)	16,020
Pennsylvania	4,483
Eastern Total	**26,387**
Kentucky	442
Ohio	3,167
West Virginia	465
East Central Total	**4,074**
Alabama	527
Florida	1,037
Georgia	610
North Carolina	530
South Carolina	315
Tennessee	378
Virginia	826
Southeastern Total	**4,223**
Illinois	3,577
Indiana	795
Michigan	2,061
Wisconsin	561
Great Lakes Total	**6,994**
Minnesota	654
North Dakota	49
South Dakota	58
North Central Total	**761**
Iowa	428
Kansas	294
Missouri	1,185
Nebraska	307
Middle West Total	**2,214**
Arizona	95
California	2,449
Nevada	21
Pacific Coast Total	**2,565**
Idaho	43
Montana	41
Oregon	321
Utah	106
Washington	316
Northwestern Total	**827**
Colorado	167
New Mexico	43
Wyoming	18
Rocky Mountain Total	**228**
Arkansas	209
Louisiana	418
Mississippi	189
Oklahoma	302
Texas	1,750
Southwestern Total	**2,868**
Total United States	**56,151**
Total Canada	486
Other Foreign (Including U. S. Possessions)	4,203
Total for World	**60,840**

Hearing on Cork Code Set for Oct. 25

WASHINGTON, D. C.—The National Recovery Administration has given notice that a public hearing will be held starting Wednesday, Oct. 25, on the code of the cork industry, as presented by the Cork Institute of America, claiming to represent 98 per cent of the industry.

The proposed code establishes a maximum work week of 40 hours, averaged over six months, with not more than 48 hours in any one week. Excepted from this provision are executives, outside salesmen, technical workers, and supervisors receiving not less than $35 a week, and their immediate assistants receiving not less than $25 a week; also maintenance crews, truck drivers and shipping crews, 44 hours a week.

The code provides a minimum wage of 40 cents an hour for males and 30 cents an hour for females, where work is done on an hourly basis; but no differential between sex where the work performed is substantially the same. Minimum wage for clerical forces and sales employes, outside salesmen excepted, is $14 a week.

Unlucky Day? Not for Mr. Westervelt

NEW YORK CITY—Friday the thirteenth of this month was a lucky day for Apartment House Salesman Westervelt of the Bronx division of Allen-Ingraham, Inc., Westinghouse distributor here.

On that day he sold 740 Westinghouse refrigerators to the Amalgamated Cooperative Apartments, Mosholu Parkway. Installation of these units has been started, and will be completed by Jan. 1, according to Bronx Retail Sales Director J. F. Xavier.

DETAILS ARE GIVEN ON DERBY RESULTS

DETROIT—As officials continue their check of results of the eight-weeks' Kelvinator Derby just concluded, considerable detailed information on the contest has been compiled.

Fifteen per cent of all sales were for deluxe models, according to R. I. Petrie, Kelvinator sales manager.

Seventeen per cent were PK porcelain cabinets and only 31 per cent of all sales were of the low-priced Kelvinator R-42.

Best individual record was made by T. Ray Sprowls of George B. Sprowls & Sons, Kelvinator dealer in Claysville, Pa., a town of 1,500 population. Mr. Sprowls' record shows that deluxe sales made up 31 per cent of his total orders for the contest and porcelain PK models an additional 24 per cent.

Boston Man Second

The next 10 highest, based on actual volume of sales were as follows:

Second, Frank P. Tighe, Boston branch; third, Yale Wolfe, Standard Electrical Co., New Bedford, Mass.; fourth, J. D. Cassidy, Long Island branch; fifth, Paul W. Jones of the Jones-Cornett Electric Co., Welch, W. Va.; sixth, A. W. McNichols of the Earle Rogers Co., Wheeling, W. Va.

Seventh, R. O. Swearegen, Barber & Ross, Washington, D. C.; eighth, Charles Carson of Carson's Music & Radio, Philadelphia; ninth, H. G. Burgess, Sherman Clay & Co., San Francisco; tenth and eleventh (tie), Erwin M. Lowenstein, University City, Mo., and Lew Nachman, Quality Furniture Co., St. Louis.

HARTFORD G-E SUPPLY CORP. MOVES QUARTERS

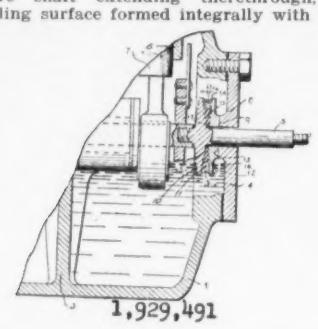
HARTFORD, Conn.—General Electric Supply Corp. of this city has moved its quarters from 103 Allyn St. to 338-346 Ann St.

PATENTS

ISSUED OCT. 10, 1933

1,929,491. SHAFT AND SEAL ASSEMBLY. Harold A. Greenwald and William D. Drysdale, Detroit, Mich., assignors, by mesne assignments, to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Application Aug. 11, 1930. Serial No. 474,574. 2 Claims. (Cl. 286—7.)

1. In combination, a crank casing, a drive shaft extending therethrough, a sealing surface formed integrally with the

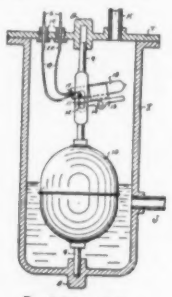


1,929,491

casing around the shaft, a sealing ring loosely mounted on the shaft for cooperating with the aforementioned sealing surface, a flange member rigidly attached to the shaft beyond the sealing ring, means preventing a fluid passing between the flange member and the sealing ring longitudinally of the shaft comprising two circular resilient members closing the space between the flange member and the sealing ring and actuable radially by external pressure so that opposite sides of said members will constantly press against and maintain sealing engagement with said flange member and sealing ring, one of said members serving as a protective coating for the other member.

1,929,500. REFRIGERATOR CAR. Julius Kopsa, Chicago, and Edmund D. Brigham, Jr., Highland Park, Ill., assignors to North American Car Corp., Chicago, Ill., a corporation of Illinois. Application Nov. 6, 1930. Serial No. 493,897. 18 Claims. (Cl. 62—117.)

1. In a refrigerating system, a brine tank, a refrigerating coil positioned out-



1,929,500

side the tank, a refrigerating coil inside the tank and connected in series with the outside coil, and means for circulating a refrigerant either through both coils or through the inside coil only.

1,929,523. REFRIGERATING CONTROL MEANS. John L. Shrode, University City, Mo., assignor to Alco Valve Co., St. Louis, Mo., a corporation of Missouri. Application April 11, 1930. Serial No. 443,593. 9 Claims. (Cl. 62—3.)

1. Refrigerating apparatus including a float-control chamber for an ammonia system of flooded type, and adapted to contain a variable level of refrigerant, a float assembly in said chamber, including a switch having its operating parts sealed in said chamber and its terminals out of contact with the refrigerant, said switch adapted for relating the movements of said float for controlling liquid ammonia supply to said chamber, a switch conductor extending through a chamber wall, and a combined sealing and insulating bushing for said conductor, secured to said wall.

1,929,583. APPARATUS FOR SUPPLYING COOLED DRINKING WATER. Edward S. Halsey, Glen Echo, Md. Application July 28, 1930. Serial No. 471,297. 11 Claims. (Cl. 62—154.)

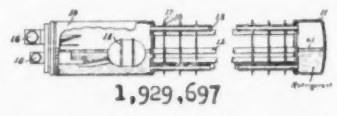
10. An apparatus for supplying cooled drinking water, comprising a container, a delivery connection leading from the container, a water supply connection for the container, and means receiving cooled water from the container and forming it into a spray and directing the spray onto the container to drench a wall thereof.

1,929,676. REFRIGERATOR CAR. Charles O. Cornwell, Los Angeles, Calif. Application Feb. 17, 1932. Serial No. 593,492. 5 Claims. (Cl. 62—15.)

1. A refrigerator car having a pair of ice bunkers arranged laterally on opposite sides and extending from opposite ends, said car having a foraminous floor, and a circulating air chamber extending below said floor and said bunkers.

1,929,697. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a corporation of Delaware. Application Nov. 30, 1927, Serial No. 236,718. Renewed Sept. 12, 1932. 4 Claims. (Cl. 62—95.)

1. Refrigerating means for mechanically refrigerated cabinets comprising a unitary structure including spaced headers, duct



1,929,697

means connecting said headers, said duct means extending in the same direction as the bodies of both headers, means operating automatically for maintaining a predetermined level of refrigerant in said duct means, and fins attached to said ducts in good thermal contact with said ducts.

4. Refrigerating element for mechanically refrigerated cabinets comprising header means, including spaced headers, means for maintaining a predetermined level of liquid in one of said headers, ducts connecting said headers, said headers being adapted to contain a stratified liquid consisting of a layer of liquid refrigerant and a layer of lubricant, said ducts being staggered to permit substantial equalization of the levels of lubricant in both headers.

1,929,775. REFRIGERATOR LATCH. George Earl De Voe, Grand Rapids, Mich., assignor to Winters & Crampton Mfg. Co., Grandville, Mich., a corporation of Michigan. Application July 6, 1932. Serial No. 620,995. 7 Claims. (Cl. 292—226.)

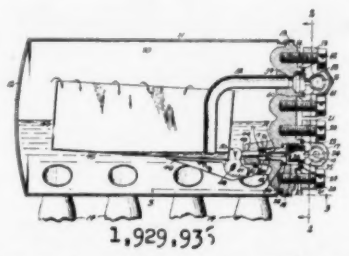
1. A unit latch construction comprising a supporting body having a back and spaced apart parallel sides, a latching bolt pivotally mounted between said sides adjacent one end thereof, spring means between the bolt and the back of the support normally pressing the latching bolt away from the back, and a handle pivotally mounted at the end of the support having an inwardly extending finger located in front of the finger on said latching bolt as specified.

1,929,841. ABSORPTION SYSTEM. Louis H. Fitch, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla., a corporation of Delaware. Application Dec. 7, 1931. Serial No. 579,571. 6 Claims. (Cl. 62—179.)

1. In an absorption system employing a liquid absorbent, chilling the denuded absorbent liquid before introducing the same into the absorption chamber by subjecting the absorbent liquid to the action of a normally gaseous refrigerant in direct contact therewith while the latter is expanding from a liquefied to a gaseous condition, then separating said refrigerant from the liquid and introducing the chilled liquid into the absorption chamber.

1,929,936. VAPORIZER FOR REFRIGERATING APPARATUS. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a corporation of New York. Application April 1, 1929. Serial No. 351,809. 8 Claims. (Cl. 62—126.)

7. In an evaporator for refrigerating ap-



1,929,935

paratus, the combination of a casing structure having an upright wall with an inlet passage for liquid refrigerant and an outlet passage for gaseous refrigerant and oil; a valve for controlling the said inlet passage; an open topped, cup shaped float pivotally mounted in the evaporator for actuating said valve; and a discharge conduit for gas and oil connected to said outlet passage and having its inlet within the cavity of the float and freely spaced therefrom.

1,929,937. EVAPORATOR. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a corporation of New York. Application Oct. 1, 1930. Serial No. 485,737. 5 Claims. (Cl. 257—255.)

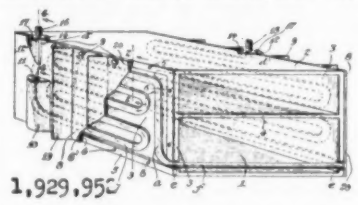
1. In an evaporator, a plurality of connected parallel tubes forming a coil, polygonal fins associated transversely of the tubes, a rigid frame enclosing the corners of the fins, and a plurality of sheet metal spacer plates engaging the tubes in planes transversely thereof.

1,929,938. EVAPORATOR AND SHELF. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a corporation of New York. Application Dec. 31, 1931. Serial No. 584,213. 2 Claims. (Cl. 62—126.)

2. In an evaporator for a refrigerant system, a housing having duct means forming a freezing chamber, a shelf having a serpentine duct therein, said shelf having a portion extending horizontally in said chamber to form an ice tray mounting and a bent terminal portion extending angularly thereto and forming a partial rear wall for the chamber, and means connecting the housing duct means to the shelf duct for fluid communication.

1,929,952. COOLING UNITS FOR REFRIGERATION PURPOSES AND METHOD OF MAKING SAME. Alexander S. Limpert, Bay Shore, N. Y., assignor to Mechana Kold Corp., Bay Shore, N. Y., a corporation of New York. Application Nov. 23, 1929, Serial No. 409,219. Renewed May 17, 1933. 7 Claims. (Cl. 62—95.)

1. A sharp cooling unit, comprising a shell having sectional side walls and a sharp cooling chamber therein, and a cool-



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ing coil interposed between the adjacent faces of the sectional side walls, the major portion of the perimeter of such coil throughout substantially the entire length thereof, being in metal-to-metal contact with the adjacent faces of the sectional side walls between which it is located.

4. The method of making a refrigerating unit, comprising separately forming a chambered main body, applying a looped tubular member, adapted to conduct a temperature-regulating medium therethrough, to an external wall of said main body and subsequently applying a cover plate to such wall in such a position and while applying sufficient pressure to said plate to effect the substantial flattening deformation of said looped tubular member so as to effect intimate metal-to-metal contact between said cover plate and the major portion of the perimeter of such tube throughout the major portion of its length thereof.

1,929,954. REFRIGERATING APPARATUS. Victor Mauck, Bryn Mawr, Pa., assignor to Master Domestic Refrigerating Co., Inc., Conshohocken, Pa., a corporation of New York. Application April 9, 1931. Serial No. 528,749. 5 Claims. (Cl. 62—118.)

5. In refrigerating apparatus of the absorption type; a generator absorber including an outer shell; a second shell within said first shell, terminating intermediate of the height thereof and forming a heating chamber; a fluid of less diameter than said heating chamber, extending from the top of said chamber through said outer shell and in communication with the atmosphere; a coil in said heating chamber in communication with the space between said shells at both the bottom and the top thereof; means in said chamber for heating said coil; a coil for a cooling medium mounted in the space between said shells and having its upper and lower ends extending through said outer shell; a refrigerant fluid in the space between said shells; and a refrigerant vapor outlet at the top of said space.

1,930,220. LIQUID COOLING APPARATUS. Joseph Askin, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application July 13, 1932. Serial No. 622,208. 3 Claims. (Cl. 62—141.)

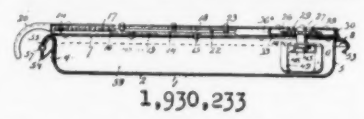
1. A fluid cooling unit comprising an open receptacle having an outer wall and a bottom, said bottom being formed with a deformed chamber portion entering the receptacle, and an evaporator coil formed of a continuous length of tubing having one section coiled about said outer wall and a second section coiled within the chamber portion adjacent the outer wall thereof.

1,930,225. REFRIGERATING SYSTEM. Albert C. Denslow, New York, N. Y., assignor to Staten Island Shipbuilding Co., Staten Island, N. Y., a corporation of New York. Application Dec. 22, 1928. Serial No. 327,809. 2 Claims. (Cl. 62—115.)

1. In a refrigerating system having a compressor, an expansion chamber comprising a vessel, an inlet conduit for said vessel communicating with said compressor, an overflow conduit for said vessel communicating with said compressor, said conduit having a plurality of spaced inlets, a pipe surrounding said conduit and defining an annular channel with which one of said inlets communicates, and wick means establishing communication between said channel, its communicating inlet and said expansion chamber.

1,930,233. REFRIGERATOR DRAWER. Arthur J. Feltault, Bloomfield, N. J., assignor to Efesem, Inc., New York, N. Y., a corporation of New York. Application March 18, 1932. Serial No. 599,672. 11 Claims. (Cl. 259—102.)

1. A device of the class described, including a drawer or tray adapted to be inserted in the cooling coil of a refrigerator,



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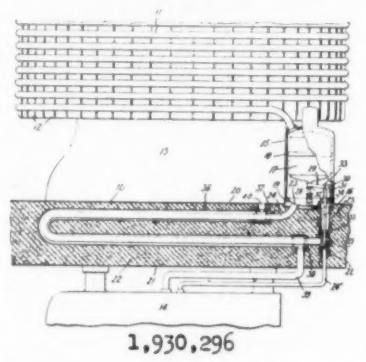
said tray having a cover and adapted to hold a supply of liquid to be frozen, a rack member on the top of said cover, a slider mounted to slide on said cover, gears carried by said slider and cooperating with said rack member to be revolved thereby, said cover having slots therein, agitators disposed under said cover and connected with said gears through the slots in the cover whereby said agitators will be revolved and reciprocated under the reciprocation of said slider, said slider being adapted to close the slots in the cover.

1,930,234. REFRIGERATOR TRAY OR DRAWER. Arthur J. Feltault, Bloomfield, N. J., assignor to Efesem, Inc., New York, N. Y., a corporation of New York. Application March 18, 1932. Serial No. 599,673. 17 Claims. (Cl. 259—99.)

1. A device of the class described, including an elongated tray or drawer adapted to hold a supply of liquid to be frozen, adapted to be placed in the cooling coil of a refrigerator, a cover for said tray, an undulating member associated with said cover, an agitator movable bodily through said tray and projecting into the liquid therein, and means for moving said agitator through the tray, said agitator having means engaging said undulating member whereby the latter will act to automatically oscillate the agitator as the same is moved bodily through the tray.

1,930,296. REFRIGERATING MACHINE. Roman C. Warneke, Fort Wayne, Ind., assignor to General Electric Co., a corporation of New York. Application Nov. 5, 1932. Serial No. 641,348. 15 Claims. (Cl. 62—115.)

1. A refrigerating system including a compartment surrounded by thermally insulated walls, an evaporator within said



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compartment, a condenser, a chamber outside said compartment for receiving liquid refrigerant from said condenser, a float in said chamber, a conduit connecting said chamber with said evaporator, a valve in said conduit controlled by said float, and means including a heat exchanger arranged within a wall of said compartment for cooling liquid refrigerant in said conduit between said chamber and said valve.

1,930,312. BEARING SEAL. Claude Greenhoe, Detroit, Mich., assignor to Moraine Products Co., Dayton, Ohio, a corporation of Ohio. Application May 3, 1929. Serial No. 360,035. 2 Claims. (Cl. 286—11.)

1. In combination, a rotatable shaft, a supporting member embracing said shaft and a bearing therebetween, said bearing having a lubricant chamber flooded with lubricant at all times to reduce friction and wear, a lubricant-absorbing porous metal collar fixed to said shaft closely adjacent said bearing and continuously supplied with lubricant from said lubricant chamber, and a thin spring metal sealing annulus having its outer periphery fixed to said supporting member and its inner periphery pressed into direct sliding and sealing contact with said porous metal collar.

1,930,414. REFRIGERATING APPARATUS. Victor Buhr, Larchmont, N. Y. Application Nov. 29, 1932. Serial No. 644,872. 3 Claims. (Cl. 62—102.)

1. In a refrigerating apparatus, a substantially closed refrigerating chamber, an apertured conveyor within said chamber, refrigerating units above and below the conveyor, said refrigerating units being arranged in staggered relation, and means for forcing a gaseous cooling medium from the refrigerating units alternately against the upper and lower surfaces of products supported on the conveyor.

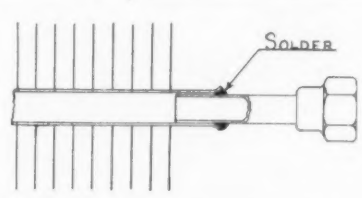
CONTINUOUS TUBING USED IN NEW BARE PIPE COILS

CHICAGO—Peerless Ice Machine Co. has just announced a new line of bare pipe coils for use in display cases, salad trays, display windows, and other places where a bare pipe coil is useful. The coils are bent out of continuous tubing with no return bends, according to R. W. Kritzer, vice president.

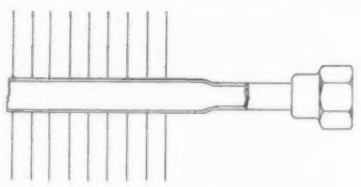
The coils are available in lengths from 2 to 20 ft., and in any number of pipes wide, the announcement states. They incorporate the new process of bending ⅝-in. tubing on 1¼-in centers.

NEW SWAGED CONNECTIONS DEVISED BY PEERLESS

CHICAGO—A new method of providing swaged inlet and outlet connections on commercial cooling coils has been devised by Peerless Ice Machine Co., and is now being incorporated into



Previous method of making inlet and outlet connections to coils with a soldered joint.



New method, swaged connection.

finned coils, bare pipe coils, and unit coolers made by the company.

Previously, the company furnished brass connections to reduce ⅝-in. tubing in the coil to the ½-in. standard for field connections. Now the ⅝-in. tubing of the coil itself is reduced to ½ in., and the ½-in. flare nut connection made on this section of reduced tubing.

GORDON MUIR'S MOTHER DIES IN ENGLAND

DETROIT—Word has been received of the death of Mrs. Mary Ann Gordon Muir, mother of Gordon Muir, advertising manager of Liquid Cooler Corp., at the home of another son, Norman, in Lincoln, England. Mrs. Muir was 87 years old.

QUESTIONS

Faucets & Pumps

No. 1401 (Manufacturer, Ohio)—"We are interested in contacting several manufacturers of a swing arm water faucet such as illustrated on page 386 of your REFRIGERATION DIRECTORY and MARKET DATA BOOK in the picture of the water cooler made by Federal Enameling & Stamping Co.

"We would also like to locate manufacturers of a hand plunger type air pump such as is used on some of the small counter type draft beer dispensing cabinets. This pump is usually mounted on the right side of the cabinet, and measures approximately 1½ in. in diameter and 8 or 9 in. long."

Answer—Can anybody tell where these parts can be secured; if so, please advise ELECTRIC REFRIGERATION NEWS.

Wants to Export Refrigerators

No. 1402 (Radio firm, New York)—"Several of our distributors in Europe are interested in purchasing complete electric refrigerators. Will you please put us in touch with some of the best American manufacturers who are in a position to fill our orders for Europe and also South America."

Answer—For a complete list of electric refrigerator manufacturers, see pages 302 to 308 of the REFRIGERATION DIRECTORY.

Roberts & Ehle's Address

No. 1403 (Service company, Missouri)—"Can you give us the address of Roberts & Ehle Co. whose new carbonated water cooler for household refrigerators was described in the Sept. 20 issue of the NEWS?"

Answer—351 W. Jefferson St., Syracuse, N. Y.

Copeland

No. 1404 (New York)—"We would appreciate any information you can give us regarding the recent reorganization of Copeland Products, Inc. We would like information as to the new officers, addresses, etc."

Answer—See the Sept. 6 issue of the NEWS.

Solid CO_2 Patents

No. 1405 (Cabinet manufacturer, Maryland)—"Where can I get a copy of the government pamphlet on solid CO_2 patents which you mentioned in the Oct. 4 issue of the NEWS?"

Answer—Address the Food Research Division of the Bureau of Chemistry and Soils, Washington, D. C.

Coin Meters

No. 1406 (Dealer, New York)—"Kindly send me a list of manufacturers of coin devices to serve as meters for use with refrigerators sold on the meter plan. Will you also advise me where we can secure blankets suited to protection of refrigerators in delivery."

Answer—Several coin meter manufacturers are listed below:

General Electric Co.
Industrial Dept., Schenectady, N. Y.

Mills Novelty Co.
4100 Fullerton Ave., Chicago, Ill.

J. P. Seeburg Corp.
1510 Dayton St., Chicago, Ill.

Shay-West, 616 S. Michigan Ave., Chicago

Thriftime Devices
205 E. 42nd St., New York, N. Y.

Refrigerator carrying pads are made by:

Bearse Mfg. Co.
3815 Cortland St., Chicago, Ill.

Fulton Bag & Cotton Mills, Atlanta, Ga.

New Haven Quilt & Pad Co.
82 Franklin St., New Haven, Conn.

Union Canvas Goods Co.
308 W. Cumberland St., Philadelphia, Pa.

Webb Mfg. Co.
Amber & Willard Sts., Philadelphia, Pa.

Potter, Chilrite, and Cavalier

No. 1407 (Manufacturer, Michigan)—"Please advise which companies manufacture the following household refrigerators: Potter, Chilrite, and Cavalier."

Answer—The Potter is made by Tricold Refrigerator Corp., 220 Delaware Ave., Buffalo, N. Y.; the Chilrite by the Narragansett Machine Co., Pawtucket, R. I.; and the Cavalier by the Tennessee Furniture Corp., Chattanooga, Tenn.

Refrigeration Schools

No. 1408 (Dealer, Kansas)—"Where can I get a list of schools teaching refrigeration service?"

Answer—Page 355 of the REFRIGERATION DIRECTORY and MARKET DATA BOOK.

List of Service Companies

No. 1409 (Manufacturer, Illinois)—"We would like to secure a list of refrigerator service companies in various parts of the country. If we remember correctly, you listed a number of them in one of your issues of the NEWS."

Answer—A directory of independent service companies was published in the Jan. 25 issue of ELECTRIC REFRIGERATION NEWS. Additions and corrections to that list were published in the April 5 issue.

PRA VIOLATORS TO FACE PUNISHMENT

WASHINGTON, D. C.—As the result of an executive order by President Roosevelt made public Oct. 17 violators of the President's Reemployment Agreement face not only the loss of their Blue Eagles but also the same penalties (fines or imprisonment or both) provided by the National Industrial Recovery Act for violators of permanent codes of fair competition.

Under the Presidential order, Blue Eagle chiselers may be punished by fines of not to exceed $500 or imprisonment for not to exceed six months, or both.

In his executive order the President proclaimed that "no one shall falsely represent himself to be discharging the obligations or complying with the provisions of the President's Reemployment or of any code of fair competition . . ." and added "no one shall display or use any emblem or insignia or any reproduction of any emblem or insignia of the National Recovery Administration" contrary to the regulations issued by General Johnson.

Simultaneously with announcement of the issuance of the Presidential order, National Recovery Administrator Hugh S. Johnson made public the text of modified regulations governing the use of the Blue Eagle by employes.

New Regulations

The new regulations are as follows:

1. The emblem, popularly known as the "Blue Eagle" is the emblem of the National Recovery Administration, and the property of the United States government.

2. Any person who has obtained the said emblem by signing a Certificate of Compliance with the President's Reemployment Agreement or with an approved code of fair competition for his trade or industry, may display of use said emblem so long as such person continues to comply therewith, unless otherwise provided by rules or regulations prescribed by the administrator for industrial recovery.

3. When, in the judgment of the said administrator or his duly authorized representatives, any person has failed to comply with said agreement or code, or when any person has improperly obtained said emblem, such person shall surrender said emblem on demand of the said administrator or his duly authorized representative, and shall not thereafter display or use the same without the written permission of the said administrator.

4. Nothing in these rules and regulations shall be construed so as to prevent the display or sale by any person whatsoever of goods or packages marked by others with the said emblem as evidence of compliance as aforesaid, except that such display or sale shall not be made in such manner as to indicate compliance by such person.

5. Any person who violates any of the foregoing rules and regulations may be punished, as provided in Section 10(a) of the National Industrial Recovery Act, by a fine not to exceed Five Hundred Dollars ($500.00) or imprisonment not to exceed six months, or both.

EARNINGS

NEW YORK CITY—Sales billed by all divisions of General Electric Co. for the first nine months of 1933 amounted to $97,426,146.39, compared with $113,049,474.95 for the corresponding period last year, a decrease of 14 per cent, Gerard Swope, president of the company, announced last week.

Profit available for dividends on common stock for the first nine months of this year totaled $6,886,600.45, compared with $9,726,395.22 for the first nine months last year.

This profit is equivalent to 24 cents per share for the nine months of 1933, and 34 cents per share for the corresponding nine months of 1932, on 28,845,927 shares outstanding at both periods.

Profit available for common stock for the third quarter of 1933 was $2,220,519.76, equivalent to 8 cents per share, compared with $2,073,207.61, or 7 cents per share for the third quarter last year.

The October dividend of 10 cents per share on common stock, and 15 cents per share on special stock, will be distributed to approximately 187,000 stockholders, compared with 179,000 a year ago.

Orders received by all branches of General Electric for the first nine months of 1933 amounted to $104,785,001, compared with $94,374,114 for the corresponding period of 1932, an increase of 11 per cent, and for the third-quarter orders were $43,733,499, compared with $25,665,402 for the third quarter last year, an increase of 70 per cent.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Bldg., Detroit, Mich.

POSITIONS AVAILABLE

WANTED — SALESMAN: Experienced salesmen now calling on electric refrigeration and beer equipment dealers to sell a proven but brand new patented system of cooling—a real innovation—the Liberty Cooler. This unit eliminates coils. No pump, no ice, no brine, no water, no waste beer, no foamy beer, no flat beer, controlled head, controlled and automatic temperature. Protected territory and repeat commissions to those qualifying. Substantial earnings possible. Write at once, stating exact territory covered, nature of other lines sold, give references. Liberty Refrigeration Corp., Providence, R. I.

POSITIONS WANTED

REFRIGERATION Service Man. Can repair any kind of electric refrigeration machine. College graduate in industrial-management engineering. Trained in electric refrigeration classroom theory and by practical laboratory experience. My field experience has been unlimited. Have tools and car. Single, age 25. Address Harry Miller, 2250 South Wabash, Chicago, Ill.

MISCELLANEOUS

A LARGE Wholesale Jobber all makes repossessed refrigerators desires to make contact with distributors throughout the United States. Profits large, investment small. Lifetime opportunity to service men, hardware stores, radio stores, furniture stores and refrigerator dealers as a drawing card for increased business. Box 594.

INDEPENDENT SERVICE COMPANIES

HALECTRIC Thermostat repair service, Ranco, B & B, Two dollars each, one year guarantee, prompt service. Halectric Laboratory. 1793 Lakeview Road, Cleveland, Ohio.